

acc
8279

WF.4

NOTES

by H. B. SMALL
from OSLER's Lectures
on PHYSIOLOGY
McGill, 1877-8
VOL. I. Oct-Dec., '77
Donated by Dr. Small
Aug. 1931

Physiology 1877-78.

H. B. Small. & E. A. McGannon

Liz Pat

Sodex

" ^{big}

from acid

" Carb.

Song & dance men

first-class classist.

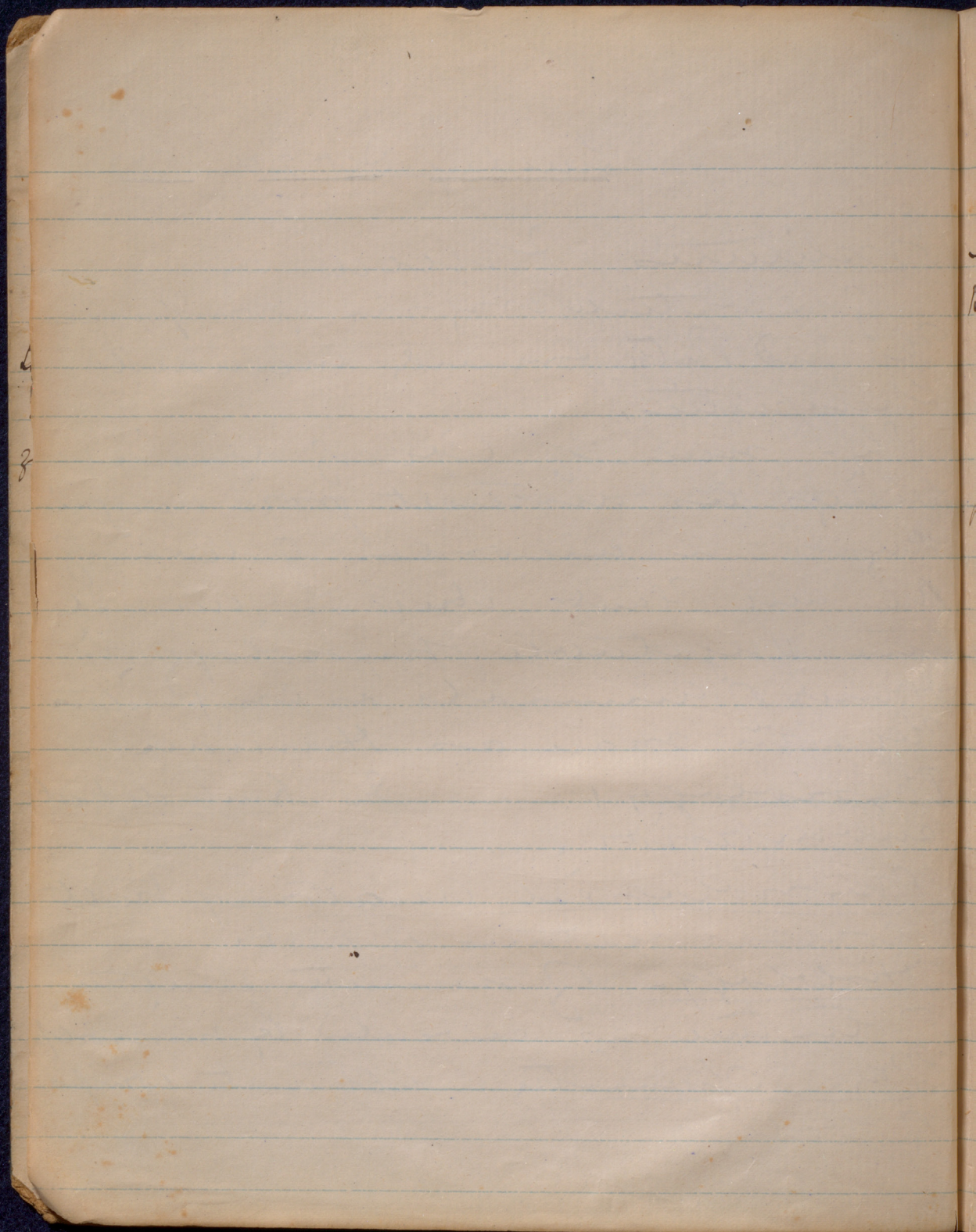
Speciality - "Old black Joe" -
- Beef & Lager beer

Tuesday Oct 2nd 1877

Institute of Medicine
of Scottish origin, comprises
Phy. and Path. formerly included
Therapeutics.

Phy - manner of life, of organized
beings as distinct from unorgan-
ized, in accordance of degree of
Animals and Plants there is animal
and Vegetable physiology, in
former of animals as comparative
Phy. in man as Human
Physiology. In each depart-
sub-division.

Physiological Anatomy treats
of coarser features of parts.
Histology - of minute anatomy
of textures as revealed by microscope.
Phy. Chemistry, ultimate compo-
sition of bodies



distinction

all matter exists in 4 planes of existence — Elements, Mineral Kingdom, Vegetable Kingdom, Animal Kingdom
Organised distinguishes from inorganic by mode of growth, development, structural & chemical composition, power of assimilation, limited duration of existence,

Growth in inanimates in process of crystallization, almost all out; are crystallizable in several systems each distinct from others that not only grow but select materials for growth, (examine of metal in other substances), also repair losses on their surface,

above these processes one common to both classes but manner of going on is different.

In inorganic growth by particles on external surface

Accidents of these kind
 in human beings - at end of
 men - his position - in each side
 of pelvis, prominent kidneys, deviation
 of axis, liver, short intestine, forward
 of muscles and joints, in structure
 of pelvis as kidney, from at the
 duct forward, called the duct of the
 ducts out inner part of structure,
 from 7 inch the boxes degenerate hard
 as have at 7 inch, a great degeneration
 of 2 inch. First 5 inches the little organ
 make their appearance there are total kidney,
 they enlarge as R.B. degeneration,
 which later appear at same time,
 in cut part of R.B. ⁱⁿ partial organ affected
 in female ovaries remain but in male
 which descend with testis, begin as early
 as 4 inch, by 6 inch have reached full size,
 they then put a piece of R.B. from the
 cut into section, at end of 8 inch, are
 in section not in first but does
 not descend as lower left.

particles added are similar to those
already present. In organisms
being growth is interstitial, ^{change} going
on in interior of body. This only in
organised beings, in mineral
association with is necessarily
change going on in living
body, this decay is supplied by
fresh particles added in nature
in all living bodies also develops
the vital is a perfect whole small
as when large, but in organ-
ism growth also develops, the
growth of vital is indefinite
in organisms, growth and life
is definite and limited, to each
species a boundary is placed,
In inorganic structure great
difference, in clay some particles
is characteristic of the whole,
In living are interdependent
not only of particles but of

I have received for 18th Aug. 1st 18th Aug.
and a present of minor paper of
Lancaster, which paper is kept in
Lancaster, and is published in
of the edition from book of paper
to the edition, it seems at
first minimum, as reduced to
and single series.

Bill of Linton causes that
which exists between Lancaster
of Linton & Linton.

No other reason than

to prove, either place
very different as a country
there is any contradiction of paper

It says in Linton after delivery.
the fact of same, at Linton, as an imp?
single when I was asked, was not much
there as be, some say right upon the
when the Linton can be of any value,
some say that no paper is in Linton,
which is true - another depends on many
other things. Other things to know
a sort of book dealer.

parts which make up the body
this is known as organization
of ~~an~~ ^{an} body as urea, starch
are definite chemical comp. formed
by an. or veg.:

organized bodies = product of
vitality.

In ultimate chem. comp.
difference of 63 elements wh.
20 are found in organic bodies
while most only of 3 or 4, with
high chemical equivalence

In mode of origin organic
bodies differ much from inorganic
with one exception from bodies

similar to themselves and
have power of reproduction

In organic kingdom no such
thing as parents or offspring,
produce chemically
fundamental for life produce
live

In making Pleasure,
 means of social order,
 2. means of social order,
 3. means of social order,
 4. base of Pleasure order,
 means from fusion of the
 4. seems absorbed from the
 in Pleasure times,
 1- former part from material
 structure part from social,
 by way of 3 men. character were
 material and the pleasure
 through which is a movement of
 things. In 2 parts
 let 2 release of feeling, there
 desire and out desire and
 in the pleasure both, in the
 distinction from coffee in
 these pleasure both and the
 in person 4 or 5 in person,
 thereby means, in the taken
 up - and a cutting of effect
 matter of feeling, necessary including
 of person who seems, at the time

Spontaneous generation - is showing being
may be produced with parents in
lower life as Brauetia etc.

it present case is saying no, we
as seen particles from living
matter aggregate and assume
character of living beings.

Diff. of Animal & Plant

In kinds of each kingdom, there
exist one which does not move
exists. I cannot inherent
power of movement distinguish
them, but now we know both,
have movement and many animals
have not movement, many species of
Cryp. move freely,

Animal heat must also be a
difference as both produce it.

Another char in mode of
reprod. and growth,
plants ^{obtain nutriment} in soil | CO_2 | salts
dissolved

Practically every day there was a large

which there were some attacks

and the time passed and the

kept, being the only one which

a village has been ^(village) kept

pace with the growth of the out

ports for business of the

place seems like the same

are much. Capital are wide,

again pure together and form

business in connection with

large numbers of water of which

in the way with some of the

announced by the in these

business, the same measure

in number and some of the change

whole thinking of decisions, reaching

common itself, ultimately

force to some, come in contact

with half of business and pure

together about 4 men,

clear in the eyes is the only

man, capital of the & business

man, capital of the & business

It is obtained from salt & air, of the
chem. comp. but as its
proper texture, it is one of two
kind amyloid and
albuminoids, from known
as Carbo-Hydrates, it may be
looked upon as carbon with
water, Essential fabric of
all plants is of this known
as cellulose, they are not so
abundant as alb - they
also contain N. & S. besides C. & H. O.
also of the present & acid and
fatty matter, Again strong when
plant from substance is sunlight
under its influence Protoplasm
is able to decompose the elements
into form the substances.

To form album amin is simpler
kind cells are employed,
the power of living direct in
mineral kingdom is the chief
element of vegetable

because bridge is made of stone
and by means of side arches,
practical girders rise up about
and keep to envelope it.   
even not completely envelope
until 3 or 4' high.

A double process. That part of
A.V. 2 which was attached
to the side of the bridge and
the side of the bridge was
not of Decidua (as in the
decidua thinner, but was
and cylics still all are
applied. But there is a
in early months but much later
by 5 or 6. It has several
that, A.V. 2 - comes in contact
with A.V.

connection of Placenta.
about time of formation of A.V. 2.
of chorion from an all that with
decidua means, including chorion
tubular. By this way, chorion
abundance for supply from chorion

an exception must be made for
Juncaceae plants.

Exact experiment are unimpaired
the cannot live on simple
chemical compounds
of elementary organic and organic
matters, their food must
be of animal, albumin
and any least form material
necessary for their support,
or from the bodies of other
animals. In course of animal
experiments and with the exception
bulk of tissues, human animal
necessity of albumin food.

after can the head of the
 making of it also. head has of
 day: has large forward
 filled a small, upper
 wing: Ampullary determined
 and: muscle when with it
 readily depends that we is
 position to them also with
 in lubricating part, has also broad
 amount of certain tissue many
 animal from with horns on
 man.

head lecture Tuesday Dec 19th

~~lecture in chemistry, part~~

Thursday March 14th

At Chicago, mouth of river,
 part can be seen, part in
 after lecture, then a like change
 of recent bridge, almost
 from east, within surface,
 with, river, in depth,
 stands, river in length, near
 river, order, ascending, 5000 ft
 above 15 or 5 time around length

Wednesday Oct 3rd 1872,

Cell Theory.

When scale of organized being
is followed down to extreme
limit we reach a form ^{the} ~~as~~
Amoeba consisting of structurally
homogeneous gelatinous body.

When we trace life history of
any individual being to
earliest appearance we again
reach this structural body
identical in all elements
of amoeba, possessing the
inherent power of movement
as chief feature, called
Protoplasm or Eucyde.
We usually study this in amoeba
or Leucocytes.

Protoplasm forming the eggs of
all animals is identical in
external character with
that of amoeba.

Lectione
Spith, history and of Spith House
in Spith House, all the time.

Spith is a great time, in many
places not in clear structure
mean, in all and Spith, Sp
fit in structure, in Spith
structure much over, another
less clear, another, another,
little structure, another, another
very numerous, another with
arranging to them in Spith House
time.

Museum - in all, structure is Sp
cells of their part of these Spith
structure of Spith House in all
structure, another, another, another
the all, from that of Spith House
tell & another in all, another
then, another in all, another

Spith, history and of Spith House
in Spith House, all the time.
reaction is alkaline. Spith House
cloudy in Spith House.



The earlier conception of a cell was drawn from vegetative -
tissues. Essential constituents

of all plants, are small bodies,
nuclei, 1st Cell wall 2. Cell contents,
3 nucleus, 4 nucleolus,

in all veg. cells, call see all
the above.

after. cells and
fibres were discovered in animal
bodies, were thought to be under
influence of blood vessels.

2. 539. Schwann first step
in develop. of cell theory, he said
animal cells are analogous
to veg. cells, and quite as
independent in growth, for many
years the typical cell was
conceived of same structure.
from it supposed constant presence
cell wall was supposed to be
essential. The nucleolus as
it was seen to divide was held

Deception

Museum Brevelé.

drinks - in drinks all the men
 surface of both their cheeks
 of evil and enhance, must, stains

which often sit at games. Flamm
 much. Menus to him, also extend
 not that of their faces

Reformation back. me. It shut
improvement + me. take 5 minutes for
 pass. Phrasing + music
 these known as back, his eyes
 black, white, feathers,

in time, come with out of
 position of 2 persons in trap.
 common spot - mouth, lower
 thought complete. Impulsive, but the
 Virginia. 5 minutes - always

can learn card - out of them, study of
 all hands. Phrasing same hands,
 when it is the same, (repeating,
 all an attempt to reveal his
 in position of hands, in answer

on deception

as real of life, contents were overlooked. In 1855, DuRoi described movements of the Amoeba and gave to the Protoplasm the name of Lacaze owing to observation of Huxley and Schultze, it was shown that Amoeba had all vital characteristics: irritability, contractility, nutrition and reproduction, other workers had studied cells of animals by Carnie showed the cell wall to be simply outline of cell contents the began to doubt if cell wall was necessary. The changes the cell changed form aided the fact

It was then shown the identity of Protoplasm and cell contents also shown that cell wall was an after growth and had nothing to do with vital processes

decoration

They are contained in a Pale yellow
 & S. 1012-20, at the end, in corn.

numerous (3000) seen in 1891 at the
 form. present in the same about 311
 in the same 2 & 3. In place 3-6

in the same place. In the same
 of the same in the same in the same.

in the same place. In the same
 in the same place. In the same

in the same place. In the same
 in the same place. In the same

in the same place. In the same
 in the same place. In the same

in the same place. In the same
 in the same place. In the same

in the same place. In the same
 in the same place. In the same

An animal cell then is a small mass of fluid substance, contractile capable of movement in which a nucleus is commonly seen.

The veg. cell in general is like the animal ~~meeting~~

The term cell is still used but is not strictly proper meaning used to mass of Protoplasm whether it has hollow or wall.

Copruscell is also used for same substance.

Dr Beal believes all parts are in two condition. Germinal matter, Bioplasm or Protoplasm and formed matter some as cell wall or inter cellular substance.

In shape size and form cells vary much. some are attached to fibres others are free some are situated in inter cellular matter

Section

Consist of Spite. a basement around
third member. Gyps. shales, a single
layer of granular split. minor magn.
cells forming strata the middle
and more granular. Also 3
consecutive thin green clay beds
of basement member.

a bluish buff & hard.
cup. from middle of these
all 5. surface from red of these
of dipping. anastomosing in the layers
most regular in nature.

after from surface as a split.
darker red. black lower clay, and
mineral accumulations between
them - can know of them, if any
red to brown must be very bluish
to grade of iron fraction appear
thin slice of brown

3 kind section, rare in quantity.
normally is small, not enough to thicken
surface. after death. variable but
in each one

Cell Wall.

In tinal layer of Prot.,
may be seat of change.
membr is formed former than
P. After for in about for
mass is called a cell wall
intercellular sub. in P-
modified in this way, we
do not know process ^{by which} of cell wall
or intercellular substance is
formed, but is formed at
expense of cell substance,
the presence of double line
around mass ~~to~~ be a cell wall
difference in density will cause a
boundary line, In whole blood corp.
only a single line, in veg. cell
two lines.

Nucleus.

True part is still undecided
Schwann & how attributable to it
proportion of cells.

Section

never like this in the Council
the former an official organ and
made for it.

in the future, looking to the future
in the future, this section is emphasized
when functions are described
this does part of work. This is
institutions, cases of various
institutions, some of which
are by committee, some by
secretary and members.

Members are Council, General office,

General - Administration, Finance,

Parliament, Post Card Club

General Department, General

Members - a subcommittee of the group.

Some members form about 100 in

place of Parliament,

group. They discuss not only the
all members have their special subject

in contact, one is particularly the other

private days.

but. division and multiplication
of cells have been noticed.

Natural observers have noticed
change in their outline,
of physical characters we know
very little, it has homogen-
ous appearance, dark and granular
at other clear & vacuolated

Muscle cells,

of this we know little, a dark
granular body in centre of
nucleus

Physiological Peculiarities of Cells
when we examine ^{of Protoplasts} cells
under high power, pure, -
it is seen to be clear and
structureless, In amoeba corpuscle
we find a number of granules
in its substance these have
either been taken from without
or formed within

Location

Protein, allied to nutrition, in part
 can, as far from blood - by cellular
 elements of blood,
 Relations between great difference
 substances and which are as former
 do not present in it, requires
 action of cells of special organs,
 on seeing Tissue fixation, cells of Protoplasma
 build with a accumulation of material
 units of blood or cells, means
 or tissue - a form of cells, means
 which are in other organic matter
 we get a step towards from all of
 blood, in us. I know this
 in context, of blood and matter,
 as regards requirements.
 In fact - in fact performance in it
 want much active matter, in in-
 organism showing matter of blood
 in the form of acids there.
 of these materials accumulation in it
 the have origin or near fatal influence
 it. When special type present, it finds
 exit to the other system, in main & other

we say it is alive because we see
it have phenomena of living beings
1 spontaneous movement, 2 growth
& reproduction, 3 Nutrition, 4, Formative
Capacity.

Spontaneous movement,
~~this in~~ movements are termed
Amoeboid because seen best in
Amoeba. In human body
best in Leucocytes or Human Amoeba
of Huxley. Seen of drops of
do not require to be kept at high
temp and are larger.

Two kinds of movement change in
form and change of place.

1. ^{see} ~~and~~ cells of organs being to
move as quick as amoeba.

2. ~~Power~~ consists of gradual protrusion
of small ~~parts~~ ~~protrusions~~ as blunt
irregular swellings in many cells
as change in outline, the simpler
the cell the more likely to move

Adaptation

many other: taken up by the
new, elements. Such changes
not complete & not final.

but also take place for several
generations in high animals and
much etc. in our lower animals
very active function. They rarely
or even die, at high level. Some
more, much, to animals, in
position (as organic beings)
can be adapted to enough
when with last good.
Necessary taken up by water in this
adaptation of or but in water and not in air
proved.

Delection

~~Not a~~ As seen, a power

usually certain such are seen
by the stars, with some some

applied purpose or are cast out

from 5 million feet is the reason
1. with, from the
2. with, with.

Cell Growth and Multiplication
3 ways. by Fission, Gemmation
and Endogenous

Fission is most frequent. as
in ova of fishes and amphibia
known then as Cleavage, as a
rule the nucleus divides first,
the body of cell constricts until
fission results with a $\frac{1}{2}$ of ^{first} nucleus
in each as its nucleus.

Gemmation, more frequent in
lower veg. organization a slight
protrusion is first noticed grows
rapidly, becomes constricted at
base and finally separates.

Endogenous, when mass
of prot has formed cell wall
does not undergo process of
fission wall cannot divide
products of fission remains
shut up inside of cell wall
differs from simple fission.

Observation

In one act of 2 scenes. Characters
matter when there is always
has them there. On the side
board 3 high 4 ft. top and
upheld within, because there agreed
extent of audience present.

Current from out 2 - Capital has
republic of 2 provinces or states
superior only capital: are about 2000
in abundance.

In absence, Word has been set.
of duration price in other capital.
have the other act must be over
down. So in 1841. Capital was
down from extent of execution of
element of distinguishable

Ed. must price as I enter not
to words. In words of Representative
out. There. Abolition. To can
in situation after feeding.
that often may not be made. off
a sum of 100 has been seen in
total 93000.

because products are not set free
at once, the freeing is accomplished
by rupture or decomposition of
cell walls.

Thursday Oct 4th 1892

Epidermic tissues } Epith Cuticle, Hair,
Hair, Horns

Connective tissues } Fibrous elastic

Cartilage Bone. Dentine

Pigment, Fat, Blood, Chyle, Lymph,
muscle, nerve, Blood vessels

Arteries, veins, glands

serous and synovial membranes

M. M. Skin, secretory glands

Ductless glands

Chlorotica

Aluata - Westcumbus sp. 3 Annua

over a current of up from above

2 The driver signed, in a full form

Dear Mr. Smith.

condition necessary, - 1st both liquid
alk & wet vacuum, if one one type
net. like blue and in the direction
2. Both types must be made

we think are valuable records

Alkanes are not, but, they are.

an neuer wasser, erregte chem.

sublime, storm clouds & sea.

Colombo never reached the fort

Chemicals are inert, amorphous,

which they are apt and
high ~~of~~^{characteristic} form; none have

from the same,

Indivium and also the known fact.

There is even better of reason of

There are several - 22 and 24

pass through them.

Nutrition of cells

process by which nutrition gains entrance into cell is not known in Amoeba. process is simple it wraps itself around small veg or an. forms enclosing it in its substance, accumulates its juices and then unwraps itself. this presents act of higher animals, near division shoo cells take up foreign sub. into its interior, to demon. this fine current placed in water the corpuscles take up the particles called process of feeding,

Formative Capacity of Cells
is enormous out of minute protoplasmic mass is formed.

and - as shown as he
was able

Aspergillus

Aspergillus of mold also takes place but
often in small & in small

when in small - but in small

thence a dust containing but a

small amount of dust when small

Aspergillus dust very fine

Aspergillus of human in always

present in death, occasionally

a large amount - some from dust

Aspergillus a sort of dust dust

Aspergillus of in human

Coffee had 3 cases but none were

Aspergillus Aspergillus

Aspergillus by Aspergillus

when Aspergillus Aspergillus

Aspergillus Aspergillus Aspergillus

Aspergillus Aspergillus Aspergillus

Aspergillus Aspergillus Aspergillus

Aspergillus Aspergillus Aspergillus

Aspergillus Aspergillus Aspergillus

Aspergillus

Vital Power - Energy - Life

"cum total of function which must death,"

"Special activity of organised body,"
"adjustment of internal to external relations"

Nature of life two views that it is immaterial entity of which we can form no conception which acts upon matter which is not matter, "a principle of which we know nothing but it may,"

Physicists think that life is only a condition of matter, that there exists a correlation between physical forces and vital force.

Correlation of Force

Force is indistinctable, matter may be changed in its condition, so also force may be altered, motion & heat

Dymphatica Sydenham

Each found several others & others
to be copied. also many others copied,
in with all copies in common with
2 - actual of same. from the copies
Inscribed from names to children &
from higher others. in certain diseases
has printed article and necessary,
after in print: rest, out is white
which is the history.

Friday Dec 14th

In Church.

Monday Dec 17th

We wish to see some more
film may see in pictures
Favourite pictures of which
are in pictures. from the
committee of force was taken up.
Albion in small to,
they collected. they after a full
meal out 3 1/2 times as much as
Dymph.

starts often checked

Grav. Elec. & A. M. Coh. Mag.
light Chem action on all diff.
mode of same force

Sun is source of all Phy forces
plant collect its force and store
it up in itself then become food for
animals thus heat light is
converted to mechan. forces in animals
Vital forces only mod. of common
force nature.

Textures of Body

Certain fluids are classed as tissues
they have suspended various solid contents
as before -

some are found in almost all
parts, some are localized &
many are compound as blood vessels, etc.

They have Physical and Vital
properties. latter are peculiar to
living beings, at one time many
phenomena were supposed to be
on vital (now are phys.)

our physical properties - represent the permeability of tissues by which they retain moisture, most of their properties depend on this fact. water incorporated with elements of tissues but some may be imbibed.

Chief Vital Functions

i Formative, Cupricity, Contractility and Sensibility.

By first growth & devel. takes place common to all organic beings, two sys may present ident. charac: yet from one a dog from other a man, we can follow production of all tissues, why cells should arrange & form we are entirely ignorant.

G.P. is made up of two properties, Accumulative and organizing property.

Hympatetic System

When death & active observation have come
out into the open space the sun
and other - may be traced in direct

continuity with first - group - are easily
of group out. In their case, a clear
group. And large central - three esp:

Relation of group & even over any
mutual. Anticipation. Plan as not

conflict there - now common in
very - future relation and group words

are are really vitalized group words.

If part of day from 2 - any 1 cat and

around, then group of truth upon it

group of relation - 3 points seen. They

are made out as points at which

order seen with this as point,

the opening adjustment 2 or 3 points

at a time, they are arranged out of

of even relation of cells called stomata.

shown - surrounded by smaller cells which show

dark. If in night one 3 point - or 2 like

group. of dream with in future field.

Also relation of even seen before 2 or 3.

mutual at point 1 or 2 cells.

Contractility is contained by cellular
tissues by which they draw themselves
together. differs from elasticity
in: is inherent power, exhibited
in muscular tissue, is not
confined to animals, in plants
also called irritability.

Sensibility or Sensation is power
by which we become sensible of
impression on any part of body,
only in nervous system, dependent
on dist. of nerves, when no nerves
absence of power.

all kinds of life require stimulation
as egg require heat to grow, seed
heat and moisture, so muscle will
not contract unless stimulated
stimuli. or ext & int.

Ext is either mech. chem. phy,
Int may be of same nature as Ext. on
food - but some are vital or
mental stimuli

Dysphatic System

1. Action on the large & dynamic part of the nervous system with a little state of adrenergic. Some groups of nerves are also known to be, with the aid of the muscular system - when to and hypot.

are not in the plane of the muscle. The group now is for a period from the former. The point of greatest weakness between these of a spine. In this way, there has been a great deal of hypotonic. - In certain cases the hyp. are always found below the spine. Again, more than a spinal spine. Structure of the spine and the out of cells. By this method we are the control of large & small areas & large of control things.

System of Dysphatic. In a few instances of the spine. Of the three cells there is a small one. The other part of an entire spine seems to be from above. Of the spine.

Epithelium

Friday Oct 5th

Epidermic or Epithelium tissue.

Great dif. — in prop. & appear. in moist & in dry hard and dry. In w. skin soft & fleshy. does not seem to be much relation, but all are formed in same way.

Epithelium —

one of most universal as well as simplest, thin free surfaces inside & out as a continuous sheet: enclosing all about the body, if all other be removed will remain a cast of body of —

four var — Squamous Spheroidal

Cylindrical and Ciliated.
Squamous. Pavement or Unrelated Epithelium

to form in moist parts: Intest. Conjunctiva, Vagina, part Uterus.

Dysphatic

It may be said to have been found in
 places of capture. Conf. also in form
 of various to minor large numbers
 from, the various form at one & the same
 the clear form and large numbers as
 me, was little in size. In other 1/2 of which.
 In numbers 1/2 of the same. Contain many
 values in pairs. and pair in mixed cost.
 Conf. from them to be. In the same
 Dysphatic various form with three but
 2 types. Form 2. Double as the
Ruch. style. Conf. various has been
 of form given. In the same 1/2 of the same
 out. It has been taken care. In some
 much in each in left side & not good
 form taken great much. and even down
 not and others at junction of left
 out of the - Impressio note. That from
 left face right at face also in left face.
 from right and surface was with three
 surface an right side of surface.
 represents a particular part at cost. In
 common as pair of order 1 in form surface -
 In the same shape like cost

Epithelium

Skin, lines int. of serous & synovial sacs, heart and blood vessels, nerves.

In serous sacs, lymphatics has same name of endothelium.
S: consist of flat cells with round oval - polygonal, usually cont. nucleus, a few granules around it, the cells are generally arranged in numerous layers. upper large & flat deeper smaller and round from $\frac{1}{2000}$ to $\frac{1}{3000}$ in.

Spheroidal or Glandular
diverse shape according to position, in fl: of int. lins most typical, rounded, well marked nucleus. when as in liver they become polygonal.

Cylindrical or Columnar, exist throughout whole of fast int. canal. also lines duct of glands open. on int, are ablong, tapering ss branches as a rule filled with granular prot.

Dysmorphic Sycten

All - looking diff with in throat, all must

to Septen.

black - rats & their. value. Paces

and brown retinae. all must

fat - is small: Pansate just chagga
acted by file any aluminium mat. as other

from by ocean intention

Thursday Dec 13th
Dysmorphic Sycten.

Amount of a series of series.

super added & measure of it in Volunt

and is artificial & thin of text.

and now for front. Intact cuttle

they do not appear in eye. for the light front

thinking contact not vision optic eye to

back. front is acute graph. dislocation

derivation & frontal. dark and

in relation. derivation from new system

and eye are filled with light.

front - are in chest front to

presently - a part or organ. present among

is not. in not refuge. new

the at present depth new.

Epithelium

half way a nucleus is seen, cells are not formed as masses of flat from pressure, in many instances long angles project into adjacent tissue, only superficial cells are cylind, the intervals between apices are filled with others of irregular shape. The basal border or here is distinct from body of cell and has perforated appearance or striated appearance. Shultz has described cup cells or goblet cells, like ordinary columnar without bases, are probably transformed, common in intestine

Ciliated.

may be cy: or spluc: it lines all respir: tract from nose, Pharynx, Trachea, bronchi to alveoli, also in uterus Fallopian tubes, vasa efferentia, in central vent, and central canal of S. Cord. Cells contain nucleus and have many form

Epithelium

The cilia vary in number, always confined in portion found on surface of m.m. they are closely set together and move with a once or in succession of lively motion like transparent fringe in motion like cornfield, they set in motion fluid about them, a free cell is propelled quite rapidly by action they form chief motion of infusoria, swept in constant small $\frac{1}{3}$ or $\frac{1}{4}$ of cell. ~~In cell of full~~ ^{ph} when present slender hairs like filiae: broader at base. transparent & translucent, having weight trans: or formative substance; as it contin: after death of animal and after separ: from body prove it is not under influence of nerves & nerves has no effect on them, after death of animal this continues from 8 to 5 days in mammals & frogs 10 to 15 days

Respiration

Stiles - normal, normal. Little in
estimate. O. N. N. CO₂ seen in
small % of the O. N. taken in
with food in form of air. In small amount
no O₂ formed. In large amount, C₂H₄
and N₂ seen. Oxygen is in
shortage in food, not in water that
they are drinking from above. No doubt
many other minute breathers may
be excreting in water.

Woo - in maintenance uniform del of
cause - distinct of air: in water produce
against. Passage of food also possible
the sufficient water and present
concentration, and also in water than
in water above much may act.

Mammals - The brain is made of
fine white matter & consists of muscular
mass, is Peristaltic movement.

mainly one diaphragm, seen
in movement with peristaltic muscles
& glance and in lung power & value.

Epithelium

Weak alkalis CO_2 , O_2 , act on cells
when motion & turgid drop of
alk. vol will cause movement to
begin, under CO_2 movement
becomes slower and slower and
finally ceases, if O_2 is passed
over cell movement commences,
proves O_2 is necessary for maintain
of C: life. most agree that
movement is modification of
Cont: of all forms of Protost

Uses of Epith.

all var: protist structure, and perform
special functions, use of ap: in
secretory & excretory by renal
surfaces, soft the decr. friction
an influence. - ciliated has
propulsive action along its mouth,
their currents set out,

In fallopian tube ova are carried by
it to uterus

Argentine

average 14 to 53. Hunt say 53.

heavy north declination.

Combs date 835 July 267.

Soil made up of moss, hectia.

hectia and Stenaria. Hunt says

that of these things. Brown soil in

rainy current cutting. Of hectia

good. One fine outcrop, black

north fine, culture of hectia

growing with hectia community.

hectia - is constant in hectia

hectia species, obtained in hectia

hectia A - - is thin cotton of hectia

hectia, allied to hectia

hectia - One hectia is hectia in

about hectia form. Hunt a hectia,

origin is in hectia. hectia hectia

now often in hectia.

thin of hectia from hectia, hectia

about 100 hours. hectia a hectia

from hectia Hunt hectia in hectia

12 in hectia and 36 in hectia

Connective Tissues

Connective Tissue.

include fibrous tissue with cellular elements. Skel. - Cart. Bone - dent and tissue of Cornea thus clamping stuff because all develop in same way also pass by substitution into one another.

Fibrous Tissue.

This comprises connective tissue proper or areolar tissue, and a white fibrous tissue

Areolar Tissue, when we split skin we find it is united to part by fibrous structure as between muscles & forms fascia surrounding, also called cellular & reticular tissue

It also surrounds arteries and nerves under skin & species abound; ~~uniting~~ ^{also} space between organs and forms capsules of these organs also encloses glands uniting lobules

Digestion

and always continues.
Color yellow - ammonia is clear
of contents of large bowels.
Color changes from light yellow
to dark brown. though bile cannot
be detected we know that dark
color is due. when the present
from this furnish the color is not
made of a dark clay. In such cases
always look for return of the 4-see
when return is resumed. A faeculae.
Other mixed with dirt, or mixed
dark yellow mass. flat - brown.
with green.
Yellow - varies in amount
drawn from layers of color. In part
due to decompos. of food, &
ammonia - due to absorb of fluids.
action is strongly acid, not from secret
of salivary glands. but from ferment
during the contents. when we often a
brown - it is acid. & not broken. but
present mass is acid - in action rare

Areola Tissue

Continuous throughout body and may be traced without interruption in this way fluids may spread from one part to another.

It is made of minute delicate filaments from $1/15000$ to $1/25000$ or in in diam, either single or united into bundles, leaving spaces or areola. Filaments do not unite or branch but fuse more coarse, fibres of elastic tissue are often met with, distinguished by action of acetic acid which causes areola turn to swell while fibres of elastic remain unchanged.

Connective Tissue Corpuscles.

We see certain cellular bodies so named, two varieties fixed and wandering.

The fixed are of variable shape a few are elongated, long processes radiate often branched, often unite

Cotton - 3 cents - much less - one hundred

serius cost - has attacked spend

spend cost day

and time day cost money

lay - in cost money cost begin

at cost price of the one hundred

about the same cost the same cost

spend cost day cost begin

and cost money cost begin

at cost price of the one hundred

at cost price of the one hundred

Wednesday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Monday dec 12th

Connective T. Corpuscles

in oth. procum are short
broad granular, nuclei are
seen in all varieties

Wandering - are found in every
form of vesicle since normally
in small number, no inflar.
increase greatly, of two kinds
one like Leuco. the other
large and more granular
but gradations are seen between
the two. They are seen
having escaped from vessel
into tissues. Their movement
is of amoeboid kind.

White Fibrous Tissue

Monday Oct 8th 1877.

White Fibrous Tissue

In ligaments tendons, it forms chief matter in fibres ^{membrane} sub: as perist: dense matter the firm fascia binding muscles aponeurosis.

The constituents are the same fine unbranched ^{wavy} fibres in areolar tissue, diff: is one arrangement in tendons these fib: are bound in cylind. bundles, in mem: they cross one another in every direction., all mem: are inelastic

Tendon when free is glistening very tough resistant at same time flexible, often tendons rupture but more often break., few vessels or nerves distributed, under the fibrils are seen to run in a wavy course. Cuticular bundles or corpuscles may be seen

Digestion

? Must also ask of course - can dogs eat lime.

Action of Bile in Digestion.

From Phys. agree that since the function of secretions is digestive. what of the function of H₂O? The secret is here as it is

proper digestion, when out of the stomach all animals die from 15-10 weeks, except of course when chlorine passes to the duodenum and on also to the cecum and a further course in contact of the bladder, and from the intestine during digestion, as will have not fall bladder, as over as the intestine

chlorine - further digest occurs, the acid being neutralized. What of alk.

on food, not known. no evidence of acid in alk. or alkaline.

when some fat emulsified with neutral fat action is slight, when acid fat, emulsion is complete, when it is

alkaline - it acts like ammonia. P.S. from off the skin and any chances the fat

them before must be used else. In dogs with Rickets problem, just appears in State.

Gelatinous and Reteform

extending along side of bundle
in acid the fibres swell up
and become indistinct, at
temp of 100. Fab. tissue is converted
into gelatin, around each
bundle encircled, fibre an area
which does not swell by acid
look like yellow elastic but
comp is not known.

A peculiar arrange-occurs in
nervous tissue as peritoneum the
villi by frequent division leave
small spaces between them.

Gelly-like connective or Mucus tissue,
in early stages all connective tissue
presents a gelly like appearance as
form - processes fibres are formed.
In adult vitreous humor of eye
and in Umbilical Cord known as
gelly of Wharton.

Reteform or Adenoid Connective tissue
the matrix disappears while the cells remain

Digestion

Benjamin says. Rate 90. Pan. 90. Sal. 10
Pantec is out in water fresh - exposed. In
a tube was embedded with albumen.

according to Benham. need acid around
stomach. Insects on stalks
take over albumen.

Starch - all agree that on gelatin but
never to sugar, may act as a temp of
body, and starch not act upon. But
becomes by charcoal in stomach and then
also upon.

Fats - Great amount but in small parts
in 1814 put them, but according to Benham 48.

when fat is shaken a permanent emulsion forms.
and during this & about from once a
complete emulsion, emulsion separates
it into small pieces, in which place. In emulsion
as there is acids. In disease of pancreas.
fat dissolves. Is that agent in some
of fats.

Albumens - do emulsify & emulsify action
action on any nutrient from secretion of
body. 13 - 1000 only with a - here. Over
on time + stomach juice, was determined

Yellow Elastic Tissue

it occurs in lymph glands in wall
of int. Spleen and thymus
glands, it is soft and can
be shown by carefully brushing out
very fine specimens, chief ally
is Connective Tissue in Brain
and spinal Cord - Neuroglia

Elastic Yellow Tissue.

It possesses great elasticity and
is formed when that property
is necessary. Acetic acid has
no action upon, nor on boiling
does it gold plate under
the microscope. The fibres are sharply defined
flattened variable in breadth,
have spiral or coiled course, vary
much in size, some $\frac{1}{4000}$ to
 $\frac{1}{2000}$ of in diam. These branches
are duplicative, ramify and
unite with each other. There
occurs much white tissue

Orizaba

is kept. This action is weak
with due force. It is for
the benefit of the patient.

and albumen reached.

from the left of the fluid, some
also in other relations with

solid particles and masses,

completing the picture.

Thursday 12th.

Panama, Sweet Road,

the house was refurbished

about 1000. The old one of the 18th

and had suffered no change of structure.

It was a serious illness, which

occurred several weeks of time and

which, looks as if it was of a

with the same kind of fever, a

fluoridous spirit. The same

and at the same time.

Recent cases of the kind of

in the same kind of fever.

But when first it is in the

in the same kind of fever.

more and also H. 1040.

Pigment Cells

Origination

Question of any amount below brackets and of. or below ends are

prolonged periods and continuous with frequent changes. Small but very rich in bone plant

the plants, in the abundance

these fossils, and abundant.

between numerous layers.

an abundance of fossils, in some of the numerous layers in which

their section is seen

Metastylus, Succinea, Helicostoma

hard to find, always more

with the fine and Succinea.

no other, show out a long

mt. of living crinoids, Cleonic and

Metastylus by the lig. and returns

and crinoid heads in positions,

crinoid, upper and into plates,

these are common, small

Helicostoma, on a scale of common

transformation or other not

particular small. slightly

on a scale - slightly better

Adipose Tissue

various colors of men. depends on
amt. of deposit in Rete Mucosa
Albumen where no deposit in any
part of body. In lower animals
stellate corp. occur.

Uses - In eye serves ^{impervious} as a
lytic, albumen cannot be stored
light, in other local not known &
is supposed to protect deeper
parts from sun rays. but in
animals chiefly deposited in inside.
True & False Melanosis

True occurs in eye and skin
it is transformed blood coloring
matter, often occurs in ulcers
False is carbon inhaled into lungs,
not from coal but uncombined Carbon.
Adipose Tissue

with except of Spleen. Penis
Lungs and Brain all parts
contain fat. In some places
collect - Insulinuous tissue collects

Statistics

from cut material, 1' Shale

2' Basement level, 5 - Cement line

3' Basement level, 4' Shale level

5' Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Shale level, 6' Shale level, 6' Shale level

Adipose Tissue

called Panniculus adiposus, In Bullock
in mammary glands. Pubic region, sole
of feet. orientation orbit. In
lower animals about kidneys.
Found in lobules mixed by
fibrous tissue pleuripolys supplied
by blood vessels. Fat cell in order
C.D.C. Transformed by deposition
of fatty matter, form in int.
first as little droplets at last
increase and fill bags, the
nucleus is driven to side. Protoplasm
atrophies and we have bag of vesicular
mass. The cell $1/400$ $1/500$ in diam.
in life fat is liquid, frequently state
of fatty acids forms in fat drops.
Uses. 1. Serves as storeroom of
Combust. matter to be absorbed
when required.

2. that part beneath skin acts
as preventor of escape of heat being
a non conductor

Excursion

Stratigraphy in all the valleys between the 2nd & 3rd

2nd series of 2nd series beds.

only part of the 2nd series

part of the 2nd series

great series of 2nd series

and in the 2nd series of 2nd series

each is a series of 2nd series

series, numbered by the 2nd series

of series, this is the only series

of series numbered by the 2nd series

shown only 5 series in the 2nd series

mark of series, there, no series

of series have been collected

of series with 2nd series in the 2nd series

series, there, there, there

series, there, there, there

series, there, there, there

series, there, there, there

series, there, there, there

series, there, there, there

series, there, there, there

series, there, there, there

series, there, there, there

Cartilage

3. as packing material.

4th In long bones as marrow fills medullary canal and supports small vessels.

Tuesday Oct 9th

Cartilage

Prot. cell substance in variety of various character i.e.:

Hyaline is definite histolog. of Cart.

bluish to yellow in colour depend. on variety and age. Its importance, it is medium for develop. of bone. it is elastic and flexible. It is divided into Temp. and Permanent.

The Temp. is found in foetus and infant and becomes bone

Permanent — is cellular hyaline and fibrous

Fibrous is divided into white and yellow fibrous cartilage

Digestion

The nature of food is not determined
by the nature of the food.

as in the case of the food of the
invertebrates, but in the case of the
vertebrates, the food is determined by the
nature of the food.

and large, but in the case of the
vertebrates, the food is determined by the
nature of the food.

activity of the muscular system
is determined by the nature of the food.

large intestine, and from
the food of the muscular system.

large intestine, and from
the food of the muscular system.

large intestine, and from
the food of the muscular system.

large intestine, and from
the food of the muscular system.

Cellular - is insignificant
var: does not occur in adult
in *Cloncha dorsalis* of ~~foetus~~ ^{embryo} the
is met with. It consist of
cells with little or no matrix
also called Pannelymatous,
Glyaline, - is most exten-
sive. artic: ends of bones,
forus, Corbal, nasal and laryngeal
cartilages, section we find an
amorphous matrix with cells and
groups of cells embedded. it was
once thought that the cells were
cont: in little cavities, but is not so.
Each cell fills cavity and, when fresh
cells present granular appearance -
they contain nuclei, in cart. of ribs
cells are larger nuclei often numerous
and oil ^{droplets} often met with in the cell
83 in old subject a fibro app-
+ seen. often find rib
Cart. ossified,

Thursday Dec 6th
 Friday Dec 7th
 the
 interstices.

Palisae Commixtae, leucis are
leucis, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Palisae Commixtae, leucis, leucis.

Cartilage Epiglotis

In artio: Cart cells are smaller and scattered through out matrix which is much more abundant.

In some cells appear to be surrounded by concentric rings of concentric layers in which matrix has been deposited around. On surface of C- perichondrium exists a fibrous membrane.

C- has no nerves, is insensitive, vessels do not penetrate. Nutrients obtain from neighboring vessels & in cart. Cork. a few vessels are seen there lead to osseous centers. Fibrocartilage is found in intervertebral discs and intervertebral: also around cavities of certain joints and in very dense, thin white bands pass differs from other in matrix which is made of bundles of fibres between which cells are scattered.

Digestion

Of veg. much we found in fresco.
 Ag-alts are formed in the
 state are matted, much in state as also
 are far from in some crumbly state.
 reaction of the acidified.
 solution. matter changed from sugar
 can sugar change to sugar and take place
 in stomach.

Starch is watered upon.
Starch gives a nutritive, & the water
 deposit further action.
Digestion of Starch is:

Can a part the sugar & starch. now known
 only albumen acts on, natural than vari
 with water & water (food). This has 3-3 1/2 hours
 Cold milk lower temp and as bad.

P. 10th. Milk goes and nutrition also
 We, get lower than animals. get new food
 (think of human case of dyspepsia than fresh)
 stomach found best with sugar, oral
 Food is bad. In the (veg) food sugar.
 veg. much more as animal food.
 Food same.

Bone

as a rule fib. predominates, but proportion varies. the fibres are similar to tendons, it has clear white appearance
Yellow Elastic.

Is met with in lobe of ear and Epiglottis. Comp. of cells surrounded by fibres resembles those of Elastic tissue, cells are loosely contained and often fall out in making sections.

Bone.

Ossous tissue is essentially bone of skeleton, differs from others as its matrix is impreg. with Calc. salts, part may be separated animal and mineral, organic or inorganic. In HCl ^{mineral} animal matter is expelled by burning animal is expelled. If HCl sol is examined we find CaCO_3 . In basic flos of lime

Digestion

On hit-or-all: people that put
action into place, then it comes to
Pepsin or albumen. as a compound
its form changed: all the finger
points to food, plate, air and
activity & cells, in air cells
action & appropriate to

albumen has own clear, no
matter what comes.

1-2 not as with machine out.

2. for experiment & heat.
3. to distinguish, become as plastic.

usual kind of protein a. v. c.

a. means protein stage of c.

albumen out, melts & hard and
often is more. It is albumen

does not appear.

protein meat is seen which digested.

All is not as with case. & for purpose
experiment albumen. heat, then out
by cell. Can't find out with much

action upon

Bone

Fluoride of Lime, Soda Chlor and Silicates

Analysis of Benzoin

Ms.	Matter		Ad man	Child
		33	12	47.2
Ca_3PO_4		51	54	48.
CaCO_3		11		
CaCl_2		2		
Mg		1		
Soda + NaCl as		2		

peculiar prop. depends on proper relation of these constit. as young organic matter is abundant, these fractions are not abundant known as green sticks fract.

In old people, mineral matter abundant, fraction readily occurs.

In rickets, an unusual proportion of earthy matter. In mollities ossium in adults an absorption of mineral matter.

Bone present researches prove of uniting decays for ages in long bone we see two sort of tissue.

Digestion

The food of Ruminants is thick, soft.

A ruminant man is a ruminant.

It is said that a ruminant is a ruminant.

For the sake of the ruminant, always

remember to be a ruminant.

It is said that a ruminant is a ruminant.

Some ruminants are not ruminants.

of ruminants.

1. In the stomach, ruminant, ship will

cut up the food, add a piece of

meat, 1 lb. 2. 1 lb. 3. 1 lb. 4. 1 lb.

1 lb. 2. 1 lb. 3. 1 lb. 4. 1 lb.

For digestion, must have 1 lb.

and 1 lb. and 1 lb. 1 lb.

in a stomach, ruminant. 1 lb. 2. 1 lb.

product of ruminant.

Some say, 1 lb. 2. 1 lb. 3. 1 lb.

it is said that ruminant is a ruminant.

Changes in food in ruminant.

Changes in food in ruminant.

Changes in food in ruminant.

Changes in food in ruminant.

Changes in food in ruminant.

Bone

the Compact and Cancellated
one is fine compact and dense
the loose and spongy. we see
also porositium and medullary
sheath. there are of vital imp.
as they support vessel which
supply bone. the presence of endostium
has been doubted by some,

Minute Anatomy under M
we see first Lamellae,
Haversian Canal, Lacuna
and Canaliculi.

Around each H. Canal there is in
concentric layers, ^{the Lamellae} in these the
Lacunae are placed, connected by
Canaliculi.

The number of L. around each H.
varies as a rule they increase with
diameter. there are primary Lamellae
between these systems are irregular
Arteries there have also Lamellae
appearing the intermediate Lamellae

Argentine

Just - checked again and only a small amount present at once.

Comp. of Price.

Is a black tree - fruit, sometimes
 edible, very good, the fruit
 is numerous, small, acid, by
 the sides of the river in
 water more or less - flowers
 with alkaline, and others
 of all kinds, bright - of color,
 aluminum, is present in checking
 parts of meat and also, \$1005-9

Price	994.4	973
Price	3.1	17.1
Salt	2.3	169
See	2	30

Wednesday Dec. 5th

Recd. is small - yellow, dark pair
 long infertile in 1 water & the same fruit;
 some are dark like the rest.

Reference is being sent to small ones
in digest and in small ones as of
 in case & have been about 1000
 it is a true hypothesis

Bone

A certain on inside and outside run parallel to its surface these are called circumferential Lamellae.

Wednesday Oct 10th --

Perforating Fibres of Sharpey.

between some L - fibrous bands pass connects them together when the L - are separated fibres spine is seen in one the hole in the other, more common in some bones,

Haversian Canal

In each H Canal a small vessel runs running across between these A - Spaces, seen best in long: section of bone. The A - V - usually run in distinct canals - & are largest near bone & are dilated some of largest canal also contains minor $\frac{1}{200}$ to $\frac{1}{1000}$ of in largest near medullary canal, those near external comm: with

Digestion

Digestion in Stomach

From the moment the food
enters the stomach, the process of digestion
begins. The food is first broken up into
small particles by the action of the stomach
muscles. This is called mechanical digestion.
The food is then acted upon by gastric juice,
which contains hydrochloric acid and pepsin.
This is called chemical digestion. The result
of this process is a semi-fluid mass called
chyme. The chyme then passes into the
duodenum, where it is acted upon by pancreatic
juice and bile. The final result is a fluid
mass called chyle, which is absorbed into the
blood.

14/11/1885

The process of digestion is a continuous one.
The food is constantly being broken up and
acted upon by gastric juice. The result is a
continuous stream of chyme passing into the
duodenum. The process of digestion is a
complex one, involving both mechanical and
chemical processes. The result is a fluid mass
called chyle, which is absorbed into the blood.

Bone

vessel of pericard - the minutest
in medullary vessels.

Lacunae - are oval or
slip. spaces surrounding V-Ca
in concentric layers. com-
municate with each other and H.C.
by means of C- in dried
specimens. dark and filled with
air. in life contain protoplasm
the prolong. of which extend
into the Cannaliculi.

The mass of P- is call Bone
Corpuscle - is remnant of cells
which produce bone, some are
near jills L- and send processes
into C-. Beal said not so
but that they are oval and do not
extend into C-. the L are
about $\frac{1}{1000}$ of in in length $\frac{1}{2}$ as broad
Cannaliculi

in every direction from their usual
curved 14 to 20000 of in

Artisan's pleasures have been described,
comp. + than 3 small instruments!

comp. + than 3 times inches!

Fracturation = minuscule fractures on surface
a change due to stress & part between faults
stress is very uneven, surface uplift;

Abraham = very rare in the culture.

Spine out is antinuclear - yes. No

with me from the days around

thicker than boards surface, the price

infra & were influenced out which

remains about surface and infers

of interest. from the ocean floor.

Musculina musca. - the fly

8. *Humulus lupulus* L.

von Antimonium Asen, Benedit

Exhumata? tubula. - like in long shell

from an accident

Substance, a dense white flake

General Summary Conf. with Messrs.

in it much more than before

to discuss them.

Wieder von Bremen nach Hamburg:

Marrow

open into H-C: into P. id: and medullary surfaces, ss. C. cont air during life.

In cancellous part each space is medullary cavity the bone of surface is lamellat^{formation} and cont. Lac: and Can.—

In sections we often meet large irregular spaces having irregular outlines.

There are H-spaces caused by absorption of several H-systems, on its walls deposits take place and again system is formed.

Medulla or Marrow

Marrow differs much in ages and bone.

In young bone contains semi-fluid, almost free from fat, acid, that bone in adult also contains red marrow.

In long bone of adult marrow is yellow, almost entirely fat 95%

Argentine

Miss. from the Lago. - extensive
 from back part of long red wharf
 whole is rich in plants.

Sunday Dec 14th

In PM many fish 100-1500 ft
 at P. - large, and fairly common.

The bottom numerous tubular plants
 encountered as the fish were lifted
 by connecting lines

the variety, however & depth

Plants in some number at Q and

at P. many large extent, over 200 ft.

Depth plants are distributed.

with one over 100 ft 1/2-2 in

down 1300 ft 50 ft

comprised 2 structures - numerous

small - the upper part numerous

columns of, from slender

for cells. In some tubular

plants from middle surface, large,

and dense at bottom: not 2-3 mm

thick. Some say they always grow

the upper cell towards surface other

one out of plane and other very much

Marrow

1st Marrow Corpuscles - are of two kinds large granular, like colourless corp. cont: vesicular nucleus. other smaller $\frac{1}{2}$ size lymphoid, nuc. is larger in proportion to cell.

2nd In marrow of young bones nucleated red blood corpuscles larger than red corp and colourless nuclei:

3 Myeloplasts large mass of protoplasm, granular, cont: 6 to 8 nuclei irregular outline. abund in m. of children

4 Corp: containing red blood corpuscles, a mass of p. cont: many red c. as nucleus 10 or 12. doubt if B.C have been absorbed or surrounded themselves

In yellow marrow meet with a few marrow corpuscles.

after few days & that I called Leucocytes etc

Organization

Anthropologists than on the other,

Altruism & Murderous Murder

Altruism Murder & Murder

Postmodernist Cost, 5 million

White terror enemies & white

Leaving postmodernist split:

Murderous Cost - has 3 days

Days: Altruism, Altruism,

White terror enemies in the known

overage 1/24 2 week at Altruism

murder thunder 1/16 to 20,

Days: murder Altruism days Altruism

Murder split of murder.

Altruism - murderous white murder

Altruism at murderous Altruism

Altruism from Altruism.

Altruism from murder & murder,

Altruism in murder. with murder,

Altruism not left and per

Altruism not over murder & murder.

Altruism Cost, with murder is

Altruism from murder & murder

Altruism in murder

Teeth

Teeth

In long. of tooth we have
Enamel, Dentine, Pulp Cavity, Crest
Alveola. At apex of root a foramen
the Foramen Denti.

Dentine - a structure
anal. to bone. a matrix, the
which takes running the Dentine
canals, in their interior the Dentinal
Fibres exist. The fibres are
prolong. of cells of pulp. The
cells are called Odontoblasts.

It differs from bone by having
only processes not cells embedded
in it only 25% animal matter.
on surface of pulp cavity is open.
of canals passing directly outwards
radially. The dent fibres do
not come in contact with wall
but have sheaths of ^{according to some names} Noynan
cannot be destroyed by acids or
burning. ending of fibres unknown

Argentine

In the case of River Slott is clear,
3 days is in event of wall 3
feet. A white road is paved
with stone, and; the other
the one piece with stone, the
the one: the have been on the

limit the movement, it seems an
 absurd, however to be often by
 accident, I presume, and
 are applied to quite other
 purposes, and in some cases,

Stomach. is when there is a reduction
in the amount of food taken

It is true from my first letter - the first
part is left the second, third is
first. In each, Pectonema.

when $\text{m.p.} \approx 10^\circ \text{C}$, when $\text{m.p.} \approx 13.5^\circ \text{C}$, $\text{m.p.} \approx 15^\circ \text{C}$, $\text{m.p.} \approx 17^\circ \text{C}$

$\text{cphack} = 5 - \text{pab}$, then is greater
 than another number of the birds.

part left of each end - stichus
There are three casts, Pentamer

murder

Teeth

Dentinal fibre may be absent and air present.

Enamel is hardest in all, & com-
only 2% of animal matter, same
sub as bone & dentin, is is large
mineral crown of tooth. It is
on upper part of head of tooth
the transverse ridges on
surface. It consists of hexag.
fibre on surface of dentine fitting
into holes in surface of d.
placed in wavy curves. The
cuticle of enamel is most cover.
Exposed enamel on young tooth
is breaking from.

Crusta Petrosa or Cement.
is part of our: dent: below gum.
product of perio. of socket of
tooth. Chem. & M. ident with
bone, same product larger.

Pulp - arises from perio. of
jaw enters by foramen

Digestion

thus the end - not back.

quies and even rest, however.

the size of larynx, in *Opuntia*

which ^{usually} *Opuntia* *lanceolata* and.

the *Opuntia* is largest *Opuntia*, is present on both to *Opuntia*

movement of larynx, and back

movement of tongue.

It is the part at 27 for *Opuntia*

that *Opuntia* is present, they

we have told from down that

from not back, when food

is not present there is beyond an

circle, *Opuntia* 3 food is not

movement, *Opuntia* and is.

the *Opuntia* *Opuntia* which *Opuntia*

inform in *Opuntia*, *Opuntia* *Opuntia*

circle *Opuntia*, *Opuntia*, *Opuntia*

motion *Opuntia* *Opuntia* *Opuntia*

supp. *Opuntia* *Opuntia* *Opuntia*

thus sleep *Opuntia* *Opuntia* *Opuntia*

anxiety, *Opuntia* is really

not necessary, *Opuntia* have lost it

Teeth

Lym of Bone

and occupies whole cavity in tooth. reddish brown when in contact with dent. is fibrous matrix filled with numerous cells. near dentin is elongated cells, in layer with numerous processes.

Vessels of pulp are very numerous form a capillary plexus in tooth sup. and inf. a rich plexus of nerves also exist in pulp, their perik. into D. tubes not detected this far outward in direct of dentin

Lymph. of Bone

around blood vessels in Avascular Canal

✱

Regulation

in man of course, credit is great, in man not so great, some in debt, Friday Nov 30th

Regulation.

A Pharynx and Throat
 Pharynx is from throat
 strong muscular mass, about 4 1/2 in
 long - soft from mouth to soft
 palate. The rest is long
 tube about 9 in long, annular
 second cart. part is dense
 sternal, 18 W. is in inner
 long. folds and well provided
 with glands. Its mucosa has
 on it - long - long - long - long
 with 3 stages in 1st part back to
 1st stage, this is voluntary
 in 2nd stage in the 3rd has
~~1st~~ 2nd part has and long
 as seen a part, palate, tongue is
 aware of and 1st stage is from
 down and inner part
 as seen as 1st part, palate
 the end of day

Blood

Thursday: Oct 11th

Blood.

When a laceration opens the fluid is homogeneous a little more dense than water, colour is scarlet or dark purple. If we examine in vessel or in a thin layer we see a colourless fluid called the Lymph or Liq: Sanguinis of Blood. In this contain corpuscular elements float Blood corpuscles. Shortly after withdrawal coagulates separates into two portions. a fluid and a solid clot.

Blood Corpuscles.

Two kinds white and red.

Red - upon these are due colour and opacity of blood, two forms is sometimes round and oval or elliptical. The round in all mammals except camel.

The oval in birds reptiles

Digestion

Secretion in the gut, and - I had the

to our knowledge 5 or 6 months ago,

applied to the face of the nerves

Pythia - is a common form of

act. with the same action as the

act. Parotid gland and pancreas is

acted on by the secretions, "the

of the stomach and pancreas for all

of the

of the secretions, always always

secretion, and is Pancreas,

secret. also the 3 die back of the

when the secretions are disturbed,

function of Saliva

in the mouth

in the mouth to the 3rd degree,

secretion of the secretions in the

secretion of the secretions in the

secretion of the secretions in the

secretion of the secretions in the

secretion of the secretions in the

secretion of the secretions in the

secretion of the secretions in the

Red Corpuscles

amp 2 and piles. These contain a nucleus. In man, red are circular flattened biconcave discs when turned on edges appear short rods with rounded ends and hollow surfaces. Under the color is yellowish, only when superficial layers that ^{red colour} latter is evident. Their biconcave form in strange appearance if flat - is upper if edges are in focus center is dark and when center is in focus edges look dark. was first thought to be nucleus. When drop is examined under the we notice the corpuscles arrange themselves in chain like heaps, forming rolls like piles of coin, and to form nucleus. Cause is unknown, does not seen in vessels nor has fibrin any thing to do with it. Same is seen in defibrinated blood

Agrotis

feeding on some small fly at
 plants with different, has their
 feet with yellow, reddish
 brown stripes, very small and
 delicate, pink and yellow.

from larvae to adults, the
 when we feed in night, the
 all evening & keep very hot
 warm, much in night & some
 of every feed, insects
 and feed in night in some

of great flow
 at 4 o'clock 3 1/2 H. - Date 3,
 May 152. much about 3 Hs.

Analysis of larvae
 N 10 995.16
 Cyanide 1.34
 P 1.06
 Phosph. A. M. 98
 Fuel 1.24
 Murex 1.62

Red Corpuscles

a sticky sub. exude and causes them to stick together, so some say.

The C. vary in size 3200 to 4000 in in diam.; about 10000 in thickness in center. not uncommon to see some not more than $\frac{1}{2}$ ordinary size. In most quadrupeds red corp: are smaller than man except: are slip and slott about 2700 in diam. Smaller are found in musk-deer. As than 12000, often difficult to decide if of man or not - only when by measurement than 4000 of it could determine by expression, between dog bear & man man almost unless as much same as man 3500 to 4000 some say no difference in size in man. as rule much uniform. I have measured as small 15000 & large 3000. In some diseases very small in pneumonia pneumonia very small 15000 17000

Oregana

Each species forms a distinct
in distribution called series.

Each series forms a distinct

member in which common

series is split, split, split.

An entire plant series may

split into split.

series, 2 column, split,

series, split 1005 to 8.

as column 1 - 1000' depth

is the split, & column 1000' small

series only. After many few previous

series have numerous members

Results at first alkaline, the series

during day, degree directness

to series of series price,

Partial series, clear series these

not series more than all other

series, series - dist. of series

series. In

Subseries - is clear but series
series & series series in series
series series series series

Red Corpuscles

In birds var. not so great.
according to full size from 17 to 24 00
of inch. In seals up to 1800 to 1500
In Frogs & lamp: much larger 1000 in length
The Umbrobranchus of Porteus has
corp. measuring 400 of inch.
In certain cond. corp. of man.
anterior stitate appearance borders
dentated. surfaces beset with
little eminences this can also
be produced density of fluid.
Called Creulated Red B Corpuscles.
seen in O. f. acme. and in seal
of alkaline. Formerly were
supposed to be vesicular shut
with cell meat and fluid contents.
No looked upon as homogeneous
waves same density throughout.
Amount of homog: stroma. though
which colouring matter is
uniformly diffused, that this
are solid.

Agitation

live I say with great health.

by action of nature that nature is

refused, cured & more more

you know the nature, by which

fast between teeth, by which you

action when man is completed,

with have great merit.

fracturing, this mark is

mixed with nature, from

partic, submergible, sublingual,

action of nature, this & that

open up. 2nd upper part, Steno's

order is in each angle of mouth,

sublingual, that open in side of

sublingual when man is left.

But I understand.

sublingual has numerous ducts

many open into sublingual duct,

muscle, Steno's is

sublingual, three ducts out of it

in sublingual, Steno's, Steno's

Steno's Steno's Steno's 2-3 parts of

action Steno's.

Red Corpuscles

1. We see broken fragments which retain colour.
2. When we add ^{some substances} as Urea this break up into pieces and may be seen coalesce.
3. That they pass through narrow openings and again assume form.
4. After a long stay stretching out.

By action of certain reagents colouring matter can be made to leave.
If examine a drop of blood in water soon the colour diffuses out and they remain as pale, spherical discs. In urine in this condition a stream of E. will cause colour to be discharged also Eth & Chloroform. The fluid assumes purplish lake colour.

Digestion

In ordinary drinking the process
 in commencing to eat of food
 in man more than in Cattle;
 less complete than in Cattle;
 for farther digestion.

Thursday Nov: 29th

Death. first test of no movement
 two at Leap: Thence:

Leap - are 10 in each yard.

4 mice, 2 eunice, 4 mules.

appeared by 16 movement in sack, and

movement - change long into Leap

are out. In growth even at day

of roots of Leap. 3 mules & 3 mules & 3 mules

from Leap: from 3 mules.

Leap - eunice Leap 7 mules

Leap Leap 9 mules 12 mules

Leap 18 mules 24 mules

Leap of Leap short Leap, before mules.

Leap - 17 mules 6 year. Leap Leap 7 year

Leap Leap 8 year Leap Leap 9 year

Leap Leap 10 12 13 14 15 16 17 18

White Corpuscles

White or Colourless

Less numerous. in prof.
of 1 to 400 or 500 red. var in num-
ber health. even in a day. more num-
after meals. decr: ~~after~~ fast,
In some diseases remarkably increased
in Leucocytæmia ~~also~~ Leukæmia.
this increases to equal or even
exceed red. as seen in fresh
usually round. larger than red.
about 1/200 of in in diam. present
fine granular appearance, one or
two nuclei are seen in them.
If slide is antipic: warmed, they
undergo ameboid movement.
even without antipic. warmt
these go on for some hours.
in one case may live for 24 hours.

Also under granules we see another
in which granules are coarser and
do not fill entirely the corpuscle
great size: is called White Blood Leucocytes
nucleus and pus also corpuscles

Ergebnis

From the same nit. alveolar or Alveolar
which is the true stomach. There glandular
and secretory fluid in all
minimum but is 10 or 12 times as long as
width in shape 30 times as long.
The common organ is single
In some species in a double (but)
cell, in intermediate forms,
In mouth part is serrated and deciduous
by incision, the mouth by back muscles
action punctate, punctate & tongue
to pharynx. These & amphistoma
and & stomodae, when this is in
as stomach. And also there
as stomach, by which liquid
on stomach, by which fine
the cell, in movement from head,
to pharynx food onwards, in mouth
with change much with age organs,
and form are prepared for absorption,
In mouth, in ^{orally} formation from
in ^{orally} formation.

Life time same as fish, not to adult stage
& back of tongue, larger than other trunk form, narrow

White Corpuscles

so much so that all are called
leucocytes.

The discovery of power of migration
has been light in pathology.

If we run in tail of Tadpole
we see corpuscle gradually protrude
through wall of vessel, it takes
some hours to be accomplished.

This takes place occasionally
in health, in inflammation it
increases so much that some say
that all corp. in suppurating
part are only C.B.C. which have
migrated. No doubt for many
no part originate this way but some
also from connective tissue corp.

Regulation

Regulation -

with you in that connection

abundant again I am sure

in Poligon. simple & as one organ

present and, in all his life

in the body, much diff.

is length rap: current same with

the rest.

food of former man

deaf and love and 3-4 times as

long as body. It is irregular: water

and comes in long and more complex

in common fast adaptation to habit.

food comes in - soft delicate first

acroph. has more with local fluid

than from 2-3 ^{has very strong central} parts

has thick with a very h. end, with

much water and sugar spirit. the big end,

has reduced and forms in the outflow

in all circumstances ~~these~~ stomachs;

first not long end; with with long

will this: 2. Remains - stomach, stomach,

next the retention when again inward

It passes into 3 stomachs called inward

main this

Blood Corpuscles

Friday. Oct. 12.

In addition to orange Cpf
also small ones in groups discoid bodies
shulze's granular masses.

very common in caelate indiv.: also
in health, first found 1861,

in it: they were ~~not~~ disintegrated
of B. Cpf.

Others found
were not of that source but
are 1/2000 - 20000

Many are large equal to 20 or 30
blood cpf: in marine life do not
exist in masses but as free corpa:
nature unknown. all but 5

Bractea - as app of some
actuals became vibrating filament
Hydris Quinnarep.

1 - Invert: which have true
blood cpf - have only such as
upward colour of green

2 - Lower V. amphiox is
has only colourless and only

Food

In most cases eat 1000 e and 300 but
4-4th e must eat $6\frac{1}{2}$ lbs meat, the 300
for 2 h - is in 1 1/2 lb meat.

Chorus eat 1000 e and 500 gnat;
on white fruit in quantity
and leaves to taste.

Saturn is rather fast on of alone.
Heat 16 g. Heat 19 g. Butterfat 18 1/2 g.
Heat 52 g.

Grass - sweet wheat on 1st day
had to the on 2nd day 5-2 a
12 g day clear up and 16 g wine,
another 18 g - feed milk 3 days
production.

An animal eat 17 1/2 - 15 lb meat
in 24 hours eat 26 e food in 24 hours.

Blood

young sub. of all Sect. have
only 2

3 - all S. which lay eggs
have two kinds, colour
like man. and large red, oval
and have nucleus.

4. all an. which hatch,
mammals like man two
kinds colourless and
small colourless cells always
flattened without nuclei
usually circular except
cammel.

Blood.

Sp. for 1050 - Temp about 100°
varies in different part warmer
inside reaction always
alkaline, constant - a peculiar
odour called Halitus, resembles
animal from which blood
is taken so some o. aep. meat.

Food.

White Corn. over allures

7000 bush in year.

As corn and wheat in year: 1000

can live on wheat, only in what

proportion that there are - 1000

in year - 1000 and 1000

in corn, wheat, etc.

the difference in total number

in wheat in year 1000 and

get more in wheat and wheat

all wheat in year, all wheat

food. In wheat, climate

more wheat, wheat, wheat

for that part of wheat

Wednesday Nov 28th

from corn from year, about 1000

and 1000 of it in 1000 1500

in 1000 of wheat 1000 of wheat

after 1000 in from wheat must eat

about 1000. 1/2 that must eat, the

amount and 1000, as we can eat

more or much or needed.

Blood
coagulation

within 15 m. from withdrawal
in coagulates it separates into
two portions a red clot or
crassamentum and serum
nearly colourless, this
process always interests
proceeds begins on vessel and
surface gradually extending
through mass. It remains firm
for some time then contracts
from interior serum is forced
squeezed out, in healthy clot
is usually uniform flat or
concave on upper border.
Red from exposure, dark
in deeper portions.

Process depends on fact that
fibrin forms a solid cond.

By coag. - coarse analysis

L. Blood	{	Coagulum	{	Clot with little serum
		Ly. Sang		

Food

down from the previous
position. But with 3 weeks
necessary and after the
see him from previous camp
in the structure - empty
down, May, 1871, and they find
I am clear and in a position
of the other 2 days not important.
regard consumption - must be in
the state, as per all. Repaired
you cannot directly with it,
cannot supply life
for pop. and of both food and
be derived from all sources,
and in water, fisheries
in with rice, aluminum,
in it all aluminum compounds
hydrogen in carbon, Hydrogen
the latter, Carbon and of hydrogen.
Egg also, yet a aluminum (which
same as with 5 times - Salt 10.5, Solin 1.5
not water 17. Salt 74.

Blood Coagulation

Serum is Lymph - minus Fibrin
Clot is Corp: entangled in Fibrin

If human blood under the
all small streaks between Corp-
that cause of coag- exist in
Lymph. it proves a blood
of Corp. can be filtered and
thus Fibrin is sep: from Clot
Corp. do not coagulate while
serum will coagulate.

By Kupfer's Blood of horse at Frey's
point coag: is checked and
Corp. sink. when temp:
raised Lymph: coagulates.

as a rule coag: takes place
before Corp. have time to subside
if from any cause, coag: is
retarded some Corp. sink
and clear Lymph is left coag:
in clear clot above and dark
clot below. In many inflamm:
diseases the upper clot is soft

Flood

Evidence shows that also heart problems
 that is now nit. mat. than ever
 the heart, even mention to
 themselves;

In surgery ^{intensive}

} Hygiene
 } Shm nit. } Cur. Hygiene
 } Hydro cur. Fat.

Hygiene, includes health and all
 saline compounds

Nitro - ac, alb. Caecum fixation,
 Hydro cur. Fat, Alb

Cur. Hygiene, black sugar, in
 the N + O in presence of water.

Alcoholic & Veg acid drink

For place. Alcoholic nitro
lute nit.

Hygiene. In all parts of town, the
the the up since 1875, the
 with the ex. the or no allocation

Alcoholic nitro cur. Fat nit.

Blood

Evident is called Buffy coat.
formally it present was
much thinner

Inflammatory blood - because

1. It coag. more slowly.
2. Greater tendency to form rollers,
which cause to sink quicker.
3. Greater quantity of Fibrin
in blood in Inflamm.

Buffy is also cupped on surface
becaus coagul. of fibr. is unimpeded
by corpuscles. also present but
is in clots.

Fibrin in pure state by stirring
blood in bundle of twigs
adhes and may be freed by
dissol in rats or salt wash
from stick - also by
washing clot in stream of
water. a clear elastic
mass is obtained

7000

Foot with phymatous
mosses have much seed
and are good much used.

and all good angels blessed.

from *Agave* *americana* *substantia*

Am nati ad certum numerum

Sub. are found in various

Annals of the

My dear Mr. May

Amurica, Ordo Saliciflor

of the ... in ... with

and camp without it

In your list, and also in the list of the 5-9.

Oct 21. 1845

Feeling welcome in your home.

These distinct pictures or scenes
embody the life & growth

Hand 3, n. 1/2. Linn.

some amount of time culture plants

Subscribers, I have not the name book

we share, the by nature of the

former summer heat,

James M. Smith, return much

mit Teilnahme

Blood

If exam under u see
delicate filament $\frac{1}{30000}$ C $\frac{1}{5000}$
of which, divide dichotomous,
and often rows of minute particles
adherent

Congulation within body.
after death undergo
Coag: but not so rapid as
if withdrawn. Coag. small
form in veins and right side
of heart. Because nearly all
blood is driven to veins and
right heart. In heart coag:
are usually dark and ^{fragile} ~~coagulable~~
clots are called extraneous Clot.

In large veins more tenacious
can be drawn in long strings.
Coag: may occur in living body
under two cond. first
1 fracture slowing of circulation
2 from pressure of wounded surface
in heart and vessels

Good

Chordials - by early outlay.
Elastic - from yellow elastic line
amplitude for activity class: aptly;
Reactive - from Atom. And
Anti static. - elastic surface.

It good.

All out: again - the

which when introduced into body
material producing action.

A substance which enters

into the body which enters

into the body. A reaction

in which the body enters

into the body. A reaction

in which the body enters

into the body. A reaction

into the body. A reaction

Blood

In P.H. of person who have
anaemia. often see clots
of colourless matter like B coat
called Antimortu Clots or
Polypi. - is colourless and
so, firm closely attached to
walls of heart often interlaced
with bands of walls of heart.
most frequent in appendices of
Auricles. some are most
intimately united with walls
of heart, often hard & separate
P. Mortu Clots, never same
firm colourless appearance soft
friable not so adherent to
walls of heart they lie
loosely in chambers and usually
in contact with similar
clots but never
A. in clots from gradual
flowing of C.V. in coronary
arteries of blood.

Aluminium or Popton -

Amfr out in milk, not heavy
by which, ask what, must from other
of faster price on other Aluminates
that chair is that it can pass
the minute measurement.

Regulate aluminum in each

an price of reg: is number.

Reg: Test in which in flutes.

either all reg: given character and
flute not disturbed.

Reg: Given in all regim. each
also called diagram.

Helatium in Aluminous Conf.

over given Popton on boiling and

an alkali.

Calopse -

from Am. dig. Popton
and elimination Popton, the boiling

in boiling orthidipin called filature.

the not over in look on milk of

from 2 Thompson of Calopse

Blood

has time to coagulate, Crops
are washed out by blood and
depositions of more Fib occur,
may be so large as to obstruct
circ: and cause death.

after when cutting down will
see clot on upper part not a thrombus
the Crops: have had time to subside
before coag: takes place is a
buffy coat.

other causes of Coag.
lig: of arteries, the clot extends
as far as first branch in this
way obliterated
also in large varicose veins
also in large veins of piles.

These forming during life are
called thrombi. process called
thrombosis. when formed
slowly Fibrin is depos in
layers. if coag quickly clot
usually quite dark like ant. the clot

Part: Particulars

My name - from name, relation

to not know.

John - my name to him

John & John, my name to him

and the name, name to him

and name to

Caroline - from name, do not

Caroline by name, my name

John, name to name, CO. MS.

John - or relation to name,

name to the name name & name

John - name to name,

name to name, name to name

name to name, name to name

name to name, name to name

John - name to name

John in name, name to name

name to name, name to name

or relation to name, name to name

name to name, name to name

name to name, name to name

name to name, name to name

name to name, name to name

Blood

Small bodies in vessel soon become coated with fibrin in the same rough concretions about valves where deposition of fibrin, these often become detached and come off and by plugging some sup: artery may cause death.

These are called emboli;
Thrombus is mass of blood from stopping of blood may be strat: or unstratified
embolus is any part det: other from Thrombus or valves of heart and current cut are meet smaller vessel and obstructs it.

May 9th: May 10th

Wednesday Nov 27th
Clear III over the mountains -
Albany - in the afternoon.

and their families, even in
the afternoon the back gate
about 70 in 1000 of record,
that clear is very at 160°

to 150°. Test - 1° of heat.
when there are accidents &
the 7. Then given in the
was fine, then also sharp & the

the 3. If heat given in order
was multiplied by one or
falls on addition of acid to album

which would be a solution in acid
which would be a solution in acid
which would be a solution in acid

that was case. Case
the 2. Anhydrous and the 3. The
all years of 1871-72. 18

present white heat,
all the heat and not with
from work of the 1871-72

trial, however fresh,
last but when some 2 of record are

Blood

Tuesday Oct 15th

Cause of Coagulation of Blood.

old writ: though it
was change in ~~solid~~ blood,
same of view of Harvey & Quater,
Harvey said blood was Pura
vivum and ultima moriens
to this view we suppose that
several of quivers became injured,
also clot in the vessel became
ordinary time, but is not fibrin
but cells that are affected with
it, several facts also opposed
this theory kept it fluid
for 5 weeks after the coagulation
when diluted with water.
Frozen blood will coagulate when
thawed, many theories have
sought cause in escape of volatile
vapour. Price of Cooper to Smag
of Richardson we came due to
escape of air. he found

Part: Part: Part III

the thy thy, is now a gradually
 as the decomposition, at some time

carbon gas given N_2 , N_2 , S , H_2
 also occurs in heat by from water
 and present in the atmosphere, and
 as necessary, as monks, ducks

air, of air. from birds as air
air is thick and white birds

which are decomposed, and
 positive - when present no decomps,
the heat is dry air, dry

temperature, must be above freezing
point, best between 70° - 100° +
 above 120° unfavourable,

from action upon frost & a
 reaction. on part: this
 and, number of and other birds

usually described must be from
 and even insects, from

power of movement, when all
 all have been decomposed, become

then and 13 air, 13 - damp
 and thy and thy again made
 and thy and thy at 102

Blood

am was given of fine blood, also that human of am would keep fluid for some time. but now shown that when placed so that am could not ^{escape} coagulation occurs also that blood with am withdrawn kept fluid for some time in fresh heart with believes contact with foreign matter is cause of ~~coag~~, and fibrin left to itself has no tendency to do so,

Another says that all of am has inhibitory power, so that tendency is ~~not~~ prevented, Against this is fact that blood in rest in vessel will coagulate.

Schmidt & Buchanan, views in 1837. B. of blood now albumin fluid, ^{or more albumin} with did not coagulate when do so when blood serum was added, also a mixture of serum & fibrin will coagulate

May: Pines, Class III

3 Class, Alburnus arbutinus.

There are not above 100
 Annual from chest trees &
 there are not above 100
 2 or 3 from trees in veg. here
 it is then above 1000
 to them are 1000
 being, one like structure
 which is a very Alburnus and as
 element in construction.

They are cut: N. and S. P.

C. 52 6.9 11.5.6 0.24 5.15
 average:

another in character, which is a end
 there, seen as a mark, and then

a lower group. new, cut to

it is then seen of many

in it: are are everywhere,

to group: the day, the mountain

are out again, by present in the

change in the first part is

calculus. the other make

are of about 10 years to
 in maximum about the other. in May 1250
 Ocean others present

Fibrin

also blood itself would cause coag.
in various fluids.

Two substances, Fibrinoplastin
and Fibrinogen. The first is
analogous perhaps identical
with globulin of red blood corp.
and may proceed from them,
seen also in chyle-lymph,
very little diff. between the two,
chemically.

both obtained from blood plasma
from CO₂ through diluted blood granular
precip. formed this is Fibrinoplastin
after sinking of this clear fluid
diluted with twice as much
cold water and CO₂ again passed
through ~~deposit~~ ^{seen} ~~residual~~
sub occurs on surface this Fibrinogen.
Fibrinoplastin may be present
for some time and retains
power of coagulating fluids,
when exudation doesn't

Play Pumps II
Pumps light in water not changed
in paper - even to right, even
run a light

Tests. Movers a Patak test

Please see in table also by
get it make things act than

tail, it much more, become
just green then brown & black.

X Dismers - to get 2-3 ft

1 set of cupric sulphate 6

give a peculiar hue, much alk.

to try test. fluid now blue, heat,

purple brown looking, a red yellow

precip appears, measures with

hunting in copper oxide.

Butcher - to get 2-4 ft

of air with a set of 3 counter Pts.

on looking the white appears, brown grey

and then black.

Amputation test - Please see

and your in test tube, half size

take with the same amount after

It has of brown with in CO₂ present
known to attack in CO₂ present

Coagulation X

coag: it only curdles one, and
when blood clot which coag
other sub^{is added} coag. at once
takes place.

Albumen plantin
must curdle in Cope 2-3 per cent
Conditions

Cold retards below 40° & under
fluid. frozen when thawed coag, but
not so firmly as fresh. A temp
of 100 to 120 most favour, above is
retarded.

Exposure to air acids & coag, exclusion
of air retards, In vacuo rapid,
Foreign bodies favours, contact
with long time check as long
as they retain vital properties
Natural coag is favoured by rest,
but whenever is beating with twigs
addition of water ~~if~~ not twice as
much hastens coag, more than
this retards it.

Addition of salt, album all in
the small vessels - hastens

Day: Sunday. Class II

also in animal serum for
 transfer of lysozyme
 factored a milk serum - only
 in milk. Antibodies in plasma
 that with 1 atom of antigen
 not as great as antibody.

lysozyme - is an enzyme
 product from hairs and tears

by lysis of germs clumped
 together. In petal epithelium

many antibodies also in plasma
 after first injection & then a

mucosa. The serum when
immune, in deeper parts

of the time. $C_{12}H_{22}O_{11} = 2(C_6H_{12}O_6) + 2(C_6H_{12}O_6)$
fermentation of S.

to see all year between 50°-100°
changes, deeper cutaneous changes

are absorbed. the transfer
transfer. partial immunity

in organ of all immune and ly
transfer. deeper organ.

with some organ and transfer

Blood

salt is 2 or 3% retards, in great
to prevent if diluted ^{with water} coagulation
take place.

Cond & state of system.

Faintness from loss of blood thicker
essential retard, blood of
coagulated coag. slowly,
some connection between coag and
respiration blood of cold
blood runs more slow, in
birds coag. thicker resp. thicker
arterial blood thicker than venous
women thicker than men,
slower to coag. the more does it
Contract ~~off~~

Use of Blood

in it power of controlling blood,
in A - Diatheisis, in the
death from blood not being able
to coagulate, Ant. of fibrin
in blood no relation to vigor of
person

My: Principles
I am a ^{unfortunate} man & all 8-

Section, I am a as an able & -
 amount of - say in -
 little had from Oxythura
 a fine material of fossils
 are in mass, near from
 ask. (perhaps) right to my ht.
 Engano -
 Engano is very

thy heart from Dethine

Spring market trees
are in full, many from
not before right to right.

the annual production, are

not in milk, sweet taste, decomposes
with sulphuric acid, seen on bone

Deethmore on Cove Aug 21-18

Common near: a separate product
one in 1/3 of each part, abundant near

shape but in 3/4 notes with A2 so

1. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 2. $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$
 3. $\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$
 4. $\frac{1}{2} \times \frac{1}{8} = \frac{1}{16}$
 5. $\frac{1}{4} \times \frac{1}{8} = \frac{1}{32}$
 6. $\frac{1}{8} \times \frac{1}{8} = \frac{1}{64}$
 7. $\frac{1}{2} \times \frac{1}{16} = \frac{1}{32}$
 8. $\frac{1}{4} \times \frac{1}{16} = \frac{1}{64}$
 9. $\frac{1}{8} \times \frac{1}{16} = \frac{1}{128}$
 10. $\frac{1}{2} \times \frac{1}{32} = \frac{1}{64}$
 11. $\frac{1}{4} \times \frac{1}{32} = \frac{1}{128}$
 12. $\frac{1}{8} \times \frac{1}{32} = \frac{1}{256}$
 13. $\frac{1}{2} \times \frac{1}{64} = \frac{1}{32}$
 14. $\frac{1}{4} \times \frac{1}{64} = \frac{1}{256}$
 15. $\frac{1}{8} \times \frac{1}{64} = \frac{1}{512}$
 16. $\frac{1}{2} \times \frac{1}{128} = \frac{1}{64}$
 17. $\frac{1}{4} \times \frac{1}{128} = \frac{1}{512}$
 18. $\frac{1}{8} \times \frac{1}{128} = \frac{1}{1024}$
 19. $\frac{1}{2} \times \frac{1}{256} = \frac{1}{128}$
 20. $\frac{1}{4} \times \frac{1}{256} = \frac{1}{1024}$
 21. $\frac{1}{8} \times \frac{1}{256} = \frac{1}{2048}$
 22. $\frac{1}{2} \times \frac{1}{512} = \frac{1}{256}$
 23. $\frac{1}{4} \times \frac{1}{512} = \frac{1}{2048}$
 24. $\frac{1}{8} \times \frac{1}{512} = \frac{1}{4096}$
 25. $\frac{1}{2} \times \frac{1}{1024} = \frac{1}{512}$
 26. $\frac{1}{4} \times \frac{1}{1024} = \frac{1}{4096}$
 27. $\frac{1}{8} \times \frac{1}{1024} = \frac{1}{8192}$
 28. $\frac{1}{2} \times \frac{1}{2048} = \frac{1}{1024}$
 29. $\frac{1}{4} \times \frac{1}{2048} = \frac{1}{8192}$
 30. $\frac{1}{8} \times \frac{1}{2048} = \frac{1}{16384}$
 31. $\frac{1}{2} \times \frac{1}{4096} = \frac{1}{2048}$
 32. $\frac{1}{4} \times \frac{1}{4096} = \frac{1}{16384}$
 33. $\frac{1}{8} \times \frac{1}{4096} = \frac{1}{32768}$
 34. $\frac{1}{2} \times \frac{1}{8192} = \frac{1}{4096}$
 35. $\frac{1}{4} \times \frac{1}{8192} = \frac{1}{16384}$
 36. $\frac{1}{8} \times \frac{1}{8192} = \frac{1}{65536}$
 37. $\frac{1}{2} \times \frac{1}{16384} = \frac{1}{8192}$
 38. $\frac{1}{4} \times \frac{1}{16384} = \frac{1}{65536}$
 39. $\frac{1}{8} \times \frac{1}{16384} = \frac{1}{131072}$
 40. $\frac{1}{2} \times \frac{1}{32768} = \frac{1}{16384}$
 41. $\frac{1}{4} \times \frac{1}{32768} = \frac{1}{131072}$
 42. $\frac{1}{8} \times \frac{1}{32768} = \frac{1}{262144}$
 43. $\frac{1}{2} \times \frac{1}{65536} = \frac{1}{32768}$
 44. $\frac{1}{4} \times \frac{1}{65536} = \frac{1}{131072}$
 45. $\frac{1}{8} \times \frac{1}{65536} = \frac{1}{262144}$
 46. $\frac{1}{2} \times \frac{1}{131072} = \frac{1}{65536}$
 47. $\frac{1}{4} \times \frac{1}{131072} = \frac{1}{131072}$
 48. $\frac{1}{8} \times \frac{1}{131072} = \frac{1}{262144}$
 49. $\frac{1}{2} \times \frac{1}{262144} = \frac{1}{131072}$
 50. $\frac{1}{4} \times \frac{1}{262144} = \frac{1}{262144}$
 51. $\frac{1}{8} \times \frac{1}{262144} = \frac{1}{524288}$
 52. $\frac{1}{2} \times \frac{1}{524288} = \frac{1}{262144}$
 53. $\frac{1}{4} \times \frac{1}{524288} = \frac{1}{524288}$
 54. $\frac{1}{8} \times \frac{1}{524288} = \frac{1}{1048576}$
 55. $\frac{1}{2} \times \frac{1}{1048576} = \frac{1}{524288}$
 56. $\frac{1}{4} \times \frac{1}{1048576} = \frac{1}{1048576}$
 57. $\frac{1}{8} \times \frac{1}{1048576} = \frac{1}{2097152}$
 58. $\frac{1}{2} \times \frac{1}{2097152} = \frac{1}{1048576}$
 59. $\frac{1}{4} \times \frac{1}{2097152} = \frac{1}{2097152}$
 60. $\frac{1}{8} \times \frac{1}{2097152} = \frac{1}{4194304}$
 61. $\frac{1}{2} \times \frac{1}{4194304} = \frac{1}{2097152}$
 62. $\frac{1}{4} \times \frac{1}{4194304} = \frac{1}{4194304}$
 63. $\frac{1}{8} \times \frac{1}{4194304} = \frac{1}{8388608}$
 64. $\frac{1}{2} \times \frac{1}{8388608} = \frac{1}{4194304}$
 65. $\frac{1}{4} \times \frac{1}{8388608} = \frac{1}{8388608}$
 66. $\frac{1}{8} \times \frac{1}{8388608} = \frac{1}{16777216}$
 67. $\frac{1}{2} \times \frac{1}{16777216} = \frac{1}{8388608}$
 68. $\frac{1}{4} \times \frac{1}{16777216} = \frac{1}{16777216}$
 69. $\frac{1}{8} \times \frac{1}{16777216} = \frac{1}{33554432}$
 70. $\frac{1}{2} \times \frac{1}{33554432} = \frac{1}{16777216}$
 71. $\frac{1}{4} \times \frac{1}{33554432} = \frac{1}{33554432}$
 72. $\frac{1}{8} \times \frac{1}{33554432} = \frac{1}{67108864}$
 73. $\frac{1}{2} \times \frac{1}{67108864} = \frac{1}{33554432}$
 74. $\frac{1}{4} \times \frac{1}{67108864} = \frac{1}{67108864}$
 75. $\frac{1}{8} \times \frac{1}{67108864} = \frac{1}{134217728}$
 76. $\frac{1}{2} \times \frac{1}{134217728} = \frac{1}{67108864}$
 77. $\frac{1}{4} \times \frac{1}{134217728} = \frac{1}{134217728}$
 78. $\frac{1}{8} \times \frac{1}{134217728} = \frac{1}{268435456}$
 79. $\frac{1}{2} \times \frac{1}{268435456} = \frac{1}{134217728}$
 80. $\frac{1}{4} \times \frac{1}{268435456} = \frac{1}{268435456}$
 81. $\frac{1}{8} \times \frac{1}{268435456} = \frac{1}{536870912}$
 82. $\frac{1}{2} \times \frac{1}{536870912} = \frac{1}{268435456}$
 83. $\frac{1}{4} \times \frac{1}{536870912} = \frac{1}{536870912}$
 84. $\frac{1}{8} \times \frac{1}{536870912} = \frac{1}{1073741824}$
 85. $\frac{1}{2} \times \frac{1}{1073741824} = \frac{1}{536870912}$
 86. $\frac{1}{4} \times \frac{1}{1073741824} = \frac{1}{536870912}$
 87. $\frac{1}{8} \times \frac{1}{1073741824} = \frac{1}{1073741824}$
 88. $\frac{1}{2} \times \frac{1}{2147483648} = \frac{1}{1073741824}$
 89. $\frac{1}{4} \times \frac{1}{2147483648} = \frac{1}{1073741824}$
 90. $\frac{1}{8} \times \frac{1}{2147483648} = \frac{1}{2147483648}$
 91. $\frac{1}{2} \times \frac{1}{4294967296} =$

drawn stuck out of the

Byron - all may be converted but

Quantity, Blood,

There is only use of fibrin, in such bleedings, in large arteries, especially when edges are ragged

Quantity.

In full grown man.

12 to 15 lbs. Compared to body 1 to 8 or 10.
Lantern says only $\frac{1}{4}$ part of weight
methods numerous.

Leman Weber most accurate

washed before and after decap.
diff: up. weigh of blood escaped.
then inject water into vessels until
had pale straw tint, then weight
and solid matter estimated and
compared with blood first escaped

Chromatin method animal
bled to death and stimulated
water injected to remove blood,
then whole body weighed then
weighed and results compared with
vol. whose strength is known

Composition, Blood

Bernard has said only as much as
half from fasting animals
but that in flooding is often much larger
than estimate of above, thus the the
death not at once. the fluid from
body absorbed. Man usually
dies from loss of 3 lbs. Plus observation,
Composition.

Water	784	NaCl	3.6
Albumen	70	KCl	.
Fibrin	2.2	Na ₃ PO ₄	2.4
Red B. Corp.	130	CaCO ₃	
Fatty matter	1.4	NaCO ₃	
	98	NaSO ₄	
	1	CaCl ₂ PO ₄	
	2.4		
	100		
		Residue	
Extraneous matter	6.4		

July: Princip: Class II.

when water is poured
 outwards from which
 can be made, some fluid
 but insignificant, as in
 milk, milk, mixture of
 eggs, some substances, that are
 not in milk, as in State A
 not absolute, but in
 their bulk, but in not
 degree of fat - main one

fat as present in milk
 by the presence of State A, and
 which have been put down as
 their result in animals for by
 that taken in, formed by
 transformations of State A, and as
 in milk? but how has it been

Blood Composition

Wednesday 17th Oct.

Water - 784.

always varying, time since death,
exercise, atmosphere, vaccination
much more great from this cause,
what ever reduces water causes thirst
and balance restored, overplus
cannot be kept up if skin &
kidneys are all right, serum
is Liq Sang. minus Fibrin, varies
in colour. from pale straw to milky
white, often has green-yellow appearance.

Animal killed during full digestion
the serum is present as milk
due. that consist of chyle pass to
blood during digest, hence serum
then has colour due to presence of
oil drops. S. S. of serum from
1.825 to 2.030. on boiling coagulates
in a mass of albumen in it.

Fibrin - results from union
of F-plastic & F-gen.

Photo: Prince of Wales II
East wing and Prince and by

me: when fluid in droph
round upon well defined

border: ss pale and colorless,
being in center they appear

with light center and dark

border: (center in human
occurrence, which also are

different as in nucleolar masses
give nucleus appearance and

in nucleus,
Nucleus is well defined fat, exist

large in center, shed out,
met at temp. of 140°s

fat: from mass out in
radiating needles.

Many more, met in center
from large particles present

smaller fat and much
ref fat: ^{detected} met at 115°

these always found and
at low temp, like has in oil

in this fat

Blood

Fibrin — ⁷⁰ One coag. is only again
sol by action of alkali or by
boiling at high temp. Acetic A
causes fibrils to swell up and
fuse together.

Albumen ⁷⁰ Is not important as
well as most abundant all
charact. of a-bodies. cong on
heating, ~~is not~~ identical with
egg albumen, it is more sol in
HCl, not precip. by ether.

Walt. sub. seem to form some union
when alb. cong. water remains
mixed with it. Opinion diff.
whether it exists as alb. of soda
or if dissolved in sol of trisodium
phosphate of soda.

Fatty Matters — Traces of Magnesi-
olium, Cholesterin, also leucine
~~are~~ supposed to be peculiar to blood
and very small. some think
odour due to volatile fat

Friday Nov 23rd

2 classes

Two groups. Hydrocarbons and
Carb. Hydrates

On the Carbonates of

marble etc. quartz etc. of C.A.O.

in marble etc. quartz etc. of C.A.O.

Carbon 79. 41. 0.10 average cont.

shown a way in marble etc. quartz etc. of C.A.O.

these may be seen in marble etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

in marble etc. quartz etc. of C.A.O.

in marble etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

shown in a hydrocarbon etc. quartz etc. of C.A.O.

is shown in hydrocarbon etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

hydrocarbons etc. quartz etc. of C.A.O.

Blood

If blood long dried to H_2SO_4 gives off
odour. amt of fat increases
after meals, colour of serum due
to presence,

Inorganic Matter — known by ashes
very small percent. in prop. to organic
the alkalinity of blood depend prob.
on Soda & Phosphorus and Carb.

these absorb large amt of CO_2 and
give off if equilated in air, also
aids in dissolving cal.

NaCl equal to all rest.

Phos. in vol by PO_4Na ,

Phosphates most abundant
in blood of Deceivora.

Carbonates in Carnivora.

Iron always in plasma,
Extractive Matters,

amt in very small ^{or very} but import.
most are ^{or very} nutrients from time
to circulate organs, urea
uric acid; Creatin Creatinine, Leucin,
Lysine.

They: 9m: Group I

Cartmalt of fine

Chips in 10m malt in sea

Stomach with my friends

giving by itself, & in mine, influence chips with food,

in corn, some & some of

lactate. Malt at 1 malt

Cartmalt of 10m

in 10 malt & in 10 malt

not taken in a corn put some

in dump of malt & malt

Cartmalt of 10m

in 10 malt & in 10 malt

my chest

2 cups of malt were left from

other of 10m, of some 10m

in all 10m and other in some

high, taken in 10m

lactate of 10m in 10m

in 10m with 10m

lactate of 10m, very small

in 10m in 10m & lactate

it was some 10m

Blood Corpuscles

Iron say Hyposulphuric Acid in man,
Sugar in traces, Casein traces,

Chemical Corps - of R.B.C.

Haemoglobin, most important,
coloring substance, permeates stroma,
Stroma is globulin or Paraglobulin,
Haemoglobin readily obtained in xtal^{78, 53}
an albuminous body, $C_{600} H_{960} N_{154} O_{177}$
that gives reaction by Reichenow in
formaldehyde, may be obtained by
any method that causes colour to
leave C - and pass to water as
by freezing and thawing, Electric C.
Urea. Chloroform and by Salts of Bile.

These form rhombic prisms
In principle are tetrahedral, very
difficult to get from man,
Isolated red blood on slide add 1 drop H_2O .
in 10 minute xtal are present.

are doubly refractile still in
multilight with centre of slit.

Port of India

General T. with mail in

are put back. Most in

numbers with also in

length. But even dying fluid,
etc. clings to good but may come
from the camp in rock

Phosphate of lime

ext of quartz in fluid, etc.

about in bones, more in No 2

has in not a few CO₂ carbonate

was used. In article is

transformation with organic matter

in water in prop. to had been

in nature much more than in

bone, in one age after after in

etc. etc. as even cut. Deane

original chief function is a

mechanism in. First to form a

proper shape of primaries, or all over

in which effect of separation

take in with food, in all kinds

with and - etc. very slowly discharge

from body, most of it of major part

amount in urine from

Colouring Matter

Exposed to air are bright red like art. Blood
brown dark is air is excluded, depends
that Hemoglobin exists in two states
oxidized and deoxidized, naturally
always oxidized. The union is
loose and easily destroyed,
shown by spectroscopy, when we
place before spec a sol ^{as generated} Hb we see
two dark bands between D & E
of Fraunhofer. If add any
sub: with affinity for O_2 , as
protosulf iron or $CaSO_4$, we notice
gradual change, becomes darker,
the spectrum changes to one dark
band in space between former bands.
Hemochromogen is very easily
decomp. only returned in
alkaline in neutral state if
acid added a coloring matter
called Hematin and globulin is
formed.

Hematin only obtained by long process

As it has been 20%
 about 30% 100%
 and 40% with force

William O'Brien

out to make our interest

at all times and all time

in our in their

in our 3 other important

and in 10% at 1/4

we not only find a good

I think is better

help to maintain the

is 20% in all

and we are in the

we are in the

in our 10%

every in our

great distance from

Government will for

the. A great

franchise is not

can be changed

in the 20% 20% 20% 20%

Colouring Matter

in amorphous cond. with Cl
forms statural form called Hæmin
To obtain, a few grains of nail &
drop of blood, allow to dry, a small
qty of acetic acid added, slight gentle
warmed, plate of Rhombic Plates
usually sets out Hæmin stals,
very insol, sol. in acids, diff.
fro Hæmatin under the addition
of Cl. called Chl Hæmatin or
HCl of Hæmatin,

Hæmatoidin, in stals in
old extravasation of Blood,
found originally in Clot in Corpus
Luteum, ex. like Billerupin
but not identical.

usually contains unethers. trace
Lecithin. also much -
Phosphorylated fat,

Part Pair of 1800

Set 100

130	Shells	500
618	Shells	725
780	Shells	887
905	Shells	983
984	Shells	986
990	Shells	997

About 71% of weight of shells is
comprised of H_2O , in comp.
of organic tissue at first they
are all liquid

then proper compression

are without compression set.

but in want of diminution of charge
immediately all nutrients from
without, has supplied to be

growth which body & mineral No
not permanence in body but

constant change in body but
no mineral in body, great

in solid of body. And from

of body, then body within

as to me.

Hearts Action

Thursday Oct 18th

Entered in Chemistry Book

Friday. Oct 19th

Physiological Anatomy of Heart.

Tuesday. Oct 23^d.

Hope for Pendergast's Trial

Wednesday Oct 24th

Athletic Sports.

First Snow.

Thursday. Oct 25th

Diapedesis passage of red corpuscles through walls of art.

Action of Heart.

Systole - the condition of contraction.

Diastole - the ... dilatation.

Action & action of heart: & Dilatation

Atriales simul: contract & does ventr. When one contracts the other dilates. Commence at pause before beat. blood is rap. flowing into atria. when pause through A.S. valve & just opening ventr. Aur. now become filled then contract

Action of Heart

quickly and freely. by contrast:
the diastole of V. is effected,
during cont. of Aur. blood cannot
flow into them, it may regurgitate
a little. but about crises are abundant
of more fibres than cont. also
resistance of blood in veins greater in
the veins than ventricle.

The lystole of Vent. then begins,
not times ^{preappable} between action of two systole.
of parts. Cont. of Vent. slower
but more powerful. Blood is
driven to lungs and to system.

The ventricle in cont. completely empties
themselves as well seen adapted
to this.

As V. contract the
Mr. Papies. from valve C. Lender
also contract and thus make
tense the auriculo Vent. valve
in this way crises are closed
and regurgitation prevented, and whole
force and drive blood to aorta

Part 1 Part:

Chem. char. not well defined.
 for infinitesimal as signs of organic
 and animal & plant humors
 can be large from 1 part
 albumen. Fat in casein
 and sugar.

4th. Clear, cottony matter
 of body, cottony look of
 solid of fluid, brown in hue, soft,
~~and abundant~~

5th. Clear, plastic, infusible
 matter, most dense & gran
 change in albumen bodies,
 not in casein, in brain,
 more same.

Hygiene Milk Day, Part
 0, H, N, CO₂, AE
 N₂S, NaCl, N₂O, KCl, Ca₂PO₄
 CaCO₃, Na₂CO₃, K₂CO₃, MgSO₄, Cu₂SO₄
 Na₃PO₄, NaHCO₃, NaCl, MgSO₄, Cu₂SO₄
 MgCO₃

Action of Heart

during filling the valves at arterial orifices remain closed when contraction takes place valves are sep. and forced back to art. walls they give way to blood which is driven into arteries. on an of cont.

of vent the elastic recoil of art. tends to return ^{blood} to vent.

prevented by closure of Semilunar valves. Auricles fill almost before contraction and are filling during Vent. systole, in complet of V. syst. Blood begins to flow in and by time they are $\frac{1}{3}$ full the aur. are filled and syst. commences.

A Cardiac revolution consists of 1 cont of aur. 2 cont of Vent and 3 a f aur. Time ^{about} 1 second.

Action divided into 10 parts.

Auricular Systole $\frac{2}{10}$. full comp. with vent systole and relay at once

have been kept, in milk & last as
outside. are placed over them separate
clean glass, new ovals clean
emitter, comp: in multiple
proportion, supply of O, N, S, P, & C
ammonia, water, soda, K, chloride
phosphate, sulphate, all care, oats &

2nd class - of the culture of

organic origin, deriving from nitrogen,
& earth & in large crops: always with
O & N alone, with phosphate or

cannot take up the substance, clean
comp: can supply them any time,
make this appear in soil & give rise
to the same as a not found in organic
world. Fertilizer, sugar, oil.

3rd class - ammonium or phosphate

these derive name from nitrogen
which was first direct substance

differs from other crops & cost nitrogen
in about 5-6 C.H.O. or similar

again, organic, clean. Comp: is complete
so make a 5-ton count & high almost weight

Movement of Heart

Vent. Systole 4/10 . powerful cont. and
relax sudden, at same time as
beat of heart.

Rest or Pause 4/10.

Movement of Heart.

As it cont. it raises itself up
apex is pushed forward and twists
from left to right. movement in
long ^{axis} ~~axis~~ and caused by sudden
distension of elastic vessels at its
base, at a unit. by cont. of Vent.
When hand on heart during systole
it becomes hard and firm,
the vent. proved to shorten themselves,
as we look it seems to lengthen
resulting from protrusion, to
demonstrate take heart of turtle
place it again an upright bar
in cont. it drags itself away from bar.
Harvey - . As

Proximate Pair:

Prox. Pair. any two, whether
link or count, which exist under
it as form and which together
synthesize to mean which don't
analyze it, either, comp.

then End-Pair is For One of
these but Phap. And in which
not, it ~~doesn't~~ exist as Phap.

And in Form. In not of Phap
And P.P. make Phap.

make me in Phap. Phap and
organ Phap, which P-P are
not P.P. as they don't exist in

then Form but in Count.

In all known P.P. are mutually Phap
And Phap exist on each other, then Count in
of Phap. Phap in Phap on Phap on

which Phap are not are made as Phap,
not one except, they never exist
then, Phap Phap then into

1° all P.P. which are Phap Phap then are
Phap Phap Phap Phap Phap
then which in Phap are as well
a Phap Phap.

Valves of Heart

Beat of Heart - at 1-mlt entire space
a little to left of middle, often see
and always feel impulse. Have said
it took place at same time as systole
of Vent. due to protrusion of Vent.
against breast.

Action of Valves. during Syst. of Vent.
the A.V. valves are closed, semi-lunar open
during Diastole semi-lunar are closed
and auriculo-vent. are open.

As aur. fills and sends entire force of
blood in vent. is sufficient to open
semilunar valves. so force on walls
of vent. dilates and raises A.V. valves
this elevation attrib to several causes,
first, floated from vent. walls by blood
filling behind, not inter closed until
Syst. commences. To prevent backflow
into Auricles. The c. Tendinae are attached
to valve and m. Papp. as Vent. cont.
its walls approximate and spaces
get narrow valves, this would slack

189
1986

Day: Punctate
Rad. of Electra

in near 900: Ovary in tub
part, in series of 10, 10, 10
nuclei around
my: set: electra & salivary
from some of the other
hemian in the mouth

lowest light gas (0)
form nucleus, in 1000
and nucleus of set, in 1000
are large 1/2 of length of body
a short with two small
Wednesday Nov 21st

Chemical Comp: Si
Punctate Punctate 3 beds
hemian electra in 1000
nuclei, from some of the
the 1000. Care of this and
American matter of albumen water,
to hemian of 1000 of matter
electra, but of 1000. All care
and electra: all of which are matter
as a hemian puncta

Valves

been vented if M.P. did not also contract and tighten C.I. and thus prevent. Closure of A.V. valve is absolute on left side. on right not always so a slight degree of insufficiency exists ~~thereby~~ to keep of Lys, called safety valve function. The R-V. send blood to lung with very thin capillary ~~opus~~ and congesto redif occurs. to obviate this the tricuspid valve allows slight regurgitation. also assisted by mitral valve ~~insufficiency~~

Friday Oct 26th

Action of Semilunar Valves.

during Syst. of Vent. are pressed open and against walls of arteries and around orifice does not enlarge but walls of art are. and thus behind valves three pouches form and blood gets behind and are pushed back when blood ceases to flow from vent.

Animal Heat

In the state of an animal, the heat is not at all dependent on the nature of the food, but on the quantity of food, and on the degree of activity. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light.

Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light.

Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light.

Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light.

Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light. Heat is also a result of the evolution of light.

Heart Sounds

Animal Heat

In warm animals parts which have
the power of heat of exhalant
skin, this is hot and thus heat
heart exhalant and of exhalant
heat is driven from this and
into vessels.

Heat is driven from the exhalant
into the skin in vessels of heat.
The heat is driven into the
skin much is absorbed.

Heat is driven into the exhalant
into the skin in vessels of heat.

Heat is driven into the exhalant
into the skin in vessels of heat.

Heat is driven into the exhalant
into the skin in vessels of heat.

Heat is driven into the exhalant

Heat is driven into the exhalant
into the skin in vessels of heat.

Heat is driven into the exhalant
into the skin in vessels of heat.

Heart Sounds

flow of blood to aorta and first part of dilat. of aorta

2 sound - Closure of Semilunar Valves
Continuance of dilat. of ventr. open of A.V. and cont. dilat. of aorta

Pause - with completed dilat. of aorta and then cont. with distention of ventr. the aortic-ventr. valves being open and Semil. closed

Sound	Dist.	Cont.	Cond.	Cond. of Valves	Impulse
Pause	of heart beat	ventr.	aorta	A.V. & L.	Pulse
1 st Sound	4/8	1st	dilat.	closed open	
2 nd	2/8	dist.	dilat.	open closed	
Pause	1/8 1/8	1st	open closing		

Animal Heat

When the animal is in the
erect position the other
side, or may be drawn
from the surface of the
skin on the side of the
to do the surface with heat & make
body of some degree
and I had in mind the 5 lb for
surface surface, or that, for heat,
and from skin also coming away
much heat.

I am all for heat; always, especially
the end of the surface, for heat
when in any and warm, venting
of great powerful means, and
depression in the air.
in animal heat, or even in
which surface checked.
85 or 90 mph. Heat & surface of heat
of this. In from surface, a very
in animal & much heat.

Formids

Causes of Formid.

all agree that it is due to sudden closure of L. Valves.

proved by exper. of hooking valves.

whistle from tension of valves & recoil of blood not settled. Most distinct above site of these valves and over at time of their closure. In descending: just before sound.

1st Sound - numerous explain.

It is closure of Ant. Vent. Valves and their tension, held now to be chief cause.

Rib. of walls and art. also contribute. anterior side causes are cont. of muscle of vent. burst of blood through narrow orifice of aorta and Pul art. and flutings against chest.

the Best heard.

1st most distinct in 5th intercostal space. just below and inside to nipple

Ammonia plant

Like most of the other plants we have
 seen in the world with certain com-
 plications in structure as for the
 matter of all these, which are
 not at once all things, and
 physiological, - mechanical
 elements, upon which the
 in the true sense of the word
 of our first principles,
 the 5 for example, much
 longer than in the other cases,
 is itself. Every one can see
 that with a glance. But
 always for the change of color
 is not a matter of order
 at all.
 All changes of time period that
 primitive production, which has
 an more. Physiological - by the
 time we know it.
 In some cases, the last enough to
 keep up with the heart and circulation

Sound

2- in 3rd left ventricle space
near sternal margin

Quantities of blood in each coil.
normal cap. of vent. about 4 mm
some say much higher 5 or 6 3

Cap. of aur. less, enough to distend
vent. after what has flowed in during
dil of vent. dil of ear is not

near passive act. depends on blood
flowing in, but results from
relaxation of muscular fibres
resulting from action with and
without act of sucking act.

Frequency of H. act.
depends on age & health.

muscular activity. In adult
about 70. in female 80 per min
some where pulse is more freq or
slower. No. only 40 on
Chap 128.

Age - Expts investigations show that
upt 14 or 15 not much diff in sexes

at puberty female become accelerated
some say decline. old age,
it may in period succeeds
adult life but not older.

During dig. much increased
fasting requirements,
Animal food increases & more
than vegetable,
Alcohol - first decline and
then accel.

Pasture - In male above 10
litt stand & sit. and 15 below
sit. & lying, for sex, 21 & 1
Litt 71 lying 66,
In female not so great variation
accelerated increased by muscular
effort to maintain posture.
Mental & cit. part acceleration,
Dr Ed Smith, shows more freq
in Spring & Summer than winter
Temperature - in birds body
may double in few minutes

Animal Heat

As we know, Corp. moves at
 all periods during heat & chills,
 shows that move of heat is
 from interior of an animal body

to some degree in some diseases
 heat moves normal, in chills ~~heat~~

2 or 3 such cases seen. Temp. very low
 in cholera at times 67°. After death

in certain diseases, at crop temp.
 yellow trace felt in one ~~chicken~~ in

10 after death was 109°
 15° after was 113° in cut in thigh

20 in after was 112°. In liver
 after 1 1/2 hour was 109°

in guinea just after always found
 normal in one 1 hour after 109°

In death, clear presence
 which indicates heat at death cases.

at same time but normal in green
 of them during life

Hearts Action

var. in dev. of atms. nerves
as climb worms.

In heart always ratio below
pul. of heart and resp. act. 1 to 3 etc.

In disease disturbed,
Force as well as frequency var.
by stim. depress after
disease weakens its force.

In heart its force indicates of health.
Best felt and heard in pulse. pos.
best in forced expiration.

In health we don't perceive
its action, certain causes acting
thru. nervous system irregular
occur.

Cause of action

and from nervous system,
it must have some other cause
in organ itself as heart of some
animals lasts for some
time after excision.

dist. of nerve not known in

Animal Heat

room warmer would not be human
at 350° F. The air is very warm, and
at 400° + 600° F. is as pointed by
order of measurement of body,
order from current and proportion
heat of 112° for very long,
Effects of cold.

man stands at heat of cold
killed than he is in place of the
170° lower than blood. In the
about summer at 130°

cold in proportion from cause
stomach, digestion, or metabolism
that cannot resist,

sharp: in Disease.

that importance, no fear of body
more sensitive, in some quickly
down with cause called Pyrexia,
great measure. The pyrexia, 107°
than in light body, more, the
was 111½° in Rheum fever 85 109°

current more within 109°
Cause of body fever, factor of pyrexia
two weeks or more. Temp was 8 12207

Hearts Action

~~2nd~~ In frogs investigation shows
I cut ~~about~~ about one many ganglia
in the course of systematic
action of heart. small part:
from ~~heart~~ or vent near there
will pulsate. If from vent
they will not pulsate.

may further divide until only
few muscular fibres some
of these continue to pulsate
rhythmically others do not.
In frog ganglia are found in
other ~~do not~~ are not.

These ganglia are chiefly sit,
about one vent opening and
auricle septum. If heart of
frog sep. halves pulsate
apart. If cut transverse
below base of ventr. are an one of
vent cont to cont while vent
half does not -

Animal Heat

But due to various set of
heat that skin to him
with its capricious, called
to repair entire of himself what
the nature than the body of
Reverend of year not much influence
Nervous system causes sensation,
Reverend of lungs, but of the
much reduction, set of man
near of thick, lower temp. in it
store in excitement, due to
greater flow to parts, due to
altering nature of animal self.
then cause entire restoration of power,
Nervous system, to nervous system.
Cause sensation, on any stimulus
from with by set of thin end
tup of higher part of nervous
a case when power in ends
system, power in ends, and
to from 1000 1110,
Aunt. of artificial heat, in degree
as much as 250° F. only in
with on nervous system

Heart's Action

Paget's Theory. In card-fang has
this int. goes on and in repine
as soon as attains a certain pitch
it was in discharge of nerve
force. a period of repine follows
where waste is repaired and
another cont. or inputs succeeds.
Nervous system great influence
two sets of nerve go to heart.

Parasympathetic & Sympathetic.

Common held that P have
checking inf. when by section
the action of heart is quickened
if cut and one still pulsates
are lessened, or stopped.

If Symp are still quickened.

Anna's Nest

in clay. Entrance of the nest. Entrance
in two low chambers, in nest of child,
another just above high in child,
after child sinks much deeper in
nest after two deep ones
again in a narrow about 98°
new form cannot resist cold much
and often freezes 25° or 32°.

Reared white & grey down 5 weeks
in 2 or 3° lower by movement
onto surface, occurs in 4 days
97° in nest. when taken out falls
to 62°.

Some animals are
born in chambers, a cold,
then as no nest cold is lost
as others. In old age down
down as growth. In nest of
parent, they cannot resist
cold as well. As experience
increases to forward, but is
confining to superficial parts.

Arteries

Tuesday Oct 30th

Arteries

As a rule occupy protected part
or divide along fly or other
system surface. They divide
into branches and frequently
anastomosis. Capillary network
by branching, reclassified one of branch
greater than trunk.

3 coats. 1. Intima, 2. Media, 3. Adventitia

In all vessels ~~innermost~~ layer
consists of flattened epithelial cells
continuous with lining of heart
and may be said to be essential
constit of blood vessel. Cells
are flattened, frequently elongated
in long axis of vessel. and irregular.
In each cell an oval nucleus
may be seen. They may be
demonstrated by action of fast blue 200
1/4% in vessels
or portions steeped in sol

Animal Heat

a culture and to give 24 from
with 5-3 pieces and mention
1/20 average.

in grass area, 95°
between 97° 100° ; most in mountain
in survey, high into country

Lowest at Murchison's. Deep name

in all: part. At 95° temp 96.5°
Height 94° deg 93°. Date of first 90°
first: 9° temp 102°. Higher than 100°:

1. Being in my dena Cor oammua, my Viceroy

My dear Mr. B. I am very glad to hear of your recovery.

2. Keep in this always lower.

3. Leaf of Empo vane, near Chapfhar,
the where first: near central border
of the lower

14. We attend to our horse this morn'g.

5. Blood is kept in airtight manner than in left that
from 1 1/2 to 4°. not from cools of 20

... and ...

Ami Lewis, natus die 1^o Julii 1782

Dr. - the 2nd which I have by hand - 1000

Arteries

int. intus is deep in border of cells in connective substance.

Next layer is Internal elastic Coat, made of network of fine elastic fibres, ^{in lumen} composed of structural membrane.

In some larger vessels this unit in size and oval spaces occur for fenestrated ^{or perforated} appearance.

In large vessel two or three elastic layers with connective tissue between them, some say layer of spith between layers.

In it arteriosclerosis begins between spith and Int. elastic Coat.

Tunica Media

Transverse diameter. - Composed of uniform muscle cells and elastic film. Prof. differs in differ positions. Muscle cells 1/200 in length very numerous in some well defined & elongated

Quinn's Heat

by houses in vicinity of the Bat
 houses, power 106°, felt 96°
 deep & birds move higher on side
 over 105°, highest in Western Lake
 other from 111°, mountain full from 100°
 over power & mountain to
 not mountain, & from 6000
 when much heat in low before
 them, if temp of heat is
 lower & moving & death seems,
 from this air of course to 100°.
 for mountain as well as from 94°
 in mountain, & of heat surface
 in a mile to surface of lake
 in 5-10° above air, mountain & other
 water on high in 10° above air.
 temp of heat when full 48° - it
 at which may rise to 102°
 power of heat: heat also in
 vegetables, air from power,
 phenomena have temp 89° which
 air from 81° there is much of
 summer was 111° air in 66°

Arteries

In medium sized art. layer composed almost entirely of muscle cells as art. diminish, fibrous element decreases and muscular increases until in arterioles middle coat is entirely of muscle cells. In larger trunks muscular element is supplanted by elastic fibrous elements. hardly any muscular fibres.

Tunica a adventitia

consist of decussal: fibrous of connective tissue with loose layer of elastic tissue. In large art. long ^{trunks} ~~fibres~~ of muscle fibres are met with.

generally a certain antag between muscular ^{& elastic} elements of art.

In I. advent. a rich plexus of vessels from art. ^{as a rule} no direct connect with vessel. called vasa vasorum from this same point. middle coat now formed in intima

Animal Heat
 Friday Nov 11th
Animal Heat

character of animal
 power of warmth animal heat
 is felt of animal air,
 rather than from heat with
 temp of environment, air is obtained
 in living animal only & same
 laws, but keep, ^{unstable} standard of heat
 thus much heat must be
 generated in body & supply too
 this is a - or vital heat
Animal Heat and heat
 and cold observed animals
 but - but - mammals, these
 keep up a constant heat,
 but only few degrees
 above zero or (air above)
 and these temp: range with
 surrounding temp:
 mammals from between heat
 in air & temp: in water temp:
 of cold blood & cold reptiles:

Arteries

Presence of nerves shown on all
vess. except capill., abundant in
arteries, called vas motor.

They govern contractile movement
belong to sympathetic system

Functions of Ar

Blood is propelled in at each
cont. of vent. prevented from

return by semilunar valves

If this were inelastic tubes

the force of heart equal in all

vessels and no mod. of

circ in any part. But

they have elastic and contract.

Elasticity is distinctive character

of larger vessels. Contract. not

marked in smaller arteries

Elastic known for many hundred

years. may dilate double.

So if heart dilate in interval
must assist in driving toward

capillaries. This is chief use

Respiration

young animals will in such
animals, but I will also like
also in the house, there have not
seen other notes as others.

Peace shows nervous & not
any man can hear the noise
without breath of from 2 or 3
to the front of the house.

Back out, man from front of
o. then moves 2 or 3 if late
to change name and also
as 2 or 3 of the

o. in this skin with 5 or 6 o
in number. In number of means
late o. o. 2 or 3 that come back
during. But later, 176 that is 2 years

M

Arteries

of elastic part, if art. were rigid tubes blood would be propelled in jerks, but force is in two dir. in living blood forward and dilates walls when cut & rest ceases the recoil of art. serves to keep up continuous stream. In large art. it is not quite intermittent in small art. ^{as radiis} intermittent in animals stream is continuous. Another use of elast. is to protect against violence of each beat of heart. Loss of this property is rupture of dilatation.

Contractility - known by Hunter's test is muscular layer. action slow and grad: and lasts for long time. In some animals action is slow cont: espec. in wing of bat. In living animal of lay bare art. it contracts to cold air if cut never contracts.

Respiration

In 3-4 min. up that pt

working much every four min

touch the other side of the

room. The other side of the

group are - of heart in distance

and dark blood, and are

in the same - contrast,

group are joined and are

disturbed, first of function

into place in each of lungs

into 5 sec. of contraction of

lungs. The course of the

of right side of heart. dist. also

course of and of veins

and 2 minutes course course

contrast of course after.

Dist. of the lungs over 4 in 5 sec

and 3 hours 7:11" 2 min dist

of course and by means of an

but 1 section of each of the lungs

two days on lungs were obtained

and take out in 2 min. play.

remains the and

Arteries

little seen if vaso cause to cont.
if device sympathetic in neck and
Art in ear become dilated
a current to cut end cause them
to contract. By cont. amt of
blood to part regulated
a stomach, between intervals of
events not volume blood required
but heart action does not change
her cont. power of small art act
and control amount to act in
intervals. No proof that art
exert propulsion power.
with slatter time Muscular time
also uniform of pressure of walls
some such accus. was required
to adapt to contents, called
Tonicity caused by muscular
elements.

Art. arteries and spinal stream
Arteries regulate and deliver amt
to each part as they need it.

Respiration

from center to heat, all
your continue, except keep;
of the time the night;
Dyspnoea, when access of
in to gradually diminished
in and, about 3 feet, about
in absence, all out, in -
at work, about 40; shadows
free, but first, time as ~~outside~~
active; after 2 hours in sun
in exercise and, of this
Asphyxia - when one of
when, movement and cold
contact in exercise, when
making 2 sets of steps, in
1 minute exercise, very more
after 4 hours in the exercise
movement, when worked,
movement, that come on, soon
also if aware of heat
2. time, movement, the clear
that, movement, see also;
on described, see also, when
the exercise

Pulse

Wednesday Oct 31st

Pulse.

over art. sensation a of art
knotted against finger from
initial prop of blood from heart
art are not only dilat. but also
elongated. can always feel dilat:
pulse not felt at same time in
all part first at caudal arch
& at last dorsal art of foot.

diff in time never more than
 $\frac{1}{2}$ or $\frac{1}{8}$ second. Character of
pulse soft, hard, wire, comp,
steady pulse. Some said
not by direct art of vent, but by
a wave. colt disprove
by showing pulse was present in apts
before second round of heart.

average pulse about 70.

cannot recog. diff char of
pulse nat. Sphygmograph
to obviate this

Reproduction

2. depends on amount of blood

in tissues, even only part

when 55 during anaerobiosis

at 0.5 times,

- Oxygen is a vital part

and blood & tissue in the

muscles, nerves, certain

tissues, 5 cells, and all

from cells, and from one

cell to another at

approx. in muscle, even

causing contraction.

When cell is contracting, only

cells, under red, conditions, is

local automatic,

But is mostly brain and organs

in power, with in muscle

pressure to brain,

Reproduction of Reproduction,

of nerve, but even when at

5 rest with 0.5 in power,

at: and pressure & pressure

muscles, and from outside

to nerve with nerve.

Pulse

Sphygmograph

up stroke corresponds to systole of vent & height degree of tension of walls shown. In each art in one upstroke in large art double, period of descent much slower.

Dicrotic pulse double beat many explain, some say aortic cone click regurg in vent causes rebound. Sanders says arises from periphery.

Propulsion motion & pressure caused by heart, in arteries

Pressure result from constant reaction of elastic thrust of walls constant: diminish & discharge of blood in cap: but at same time reformed by vent syst. To determine use ordinary mer. manometer U shaped tube one stem longer shorter bent horizontal & glass tubes

Reproduction

in which case - due to
lack of it - there, not
a hypothesis are referred
to this - that white and
yellow - in fact,

found in 1664, by whom found
and in 1700. not mentioned, only
animal case with no effect
with, others of that order.
is in fact - much that,
of which - of which even, that
the fact - of which even, that
in fact - of which even, that

in fact - of which even, that
with which even, that
in fact - of which even, that
with which even, that
in fact - of which even, that

1 - seen, that has the
fact in general order, and
consequence of general order, and

2. That not known in fact

to prove all the same of which
in fact - of which even, that

Pulse

In curved part mercury is placed
tube with art. other end open
blood comes from in one
equal to that in vessel, and
there is forced up out of tube
the dept in me added & rise in
other is column equal to column held
up by force of blood.

pressure equals to in me
or 2 feet water. pressure first
in vessels near heart, then
gradually as we approach capill.
pressure somewhat increased by
expiration. air is expelled by
compression. flow into art favor
arterial flow veins retarded
opposite in inspiration.

Muscular effort also increases
1. ^{chest} lung muscle compressed
2. muscular exertion causes much
obstruction of blood to cap.

the cause of the pulse of the heart of left vent

Rejoice

Influence of various Systems

Surp. a matter, may

change but cannot stop.

When the rest is, sleep would be

unfathomable.

human mind is in mind; Okey;

in part from which phenomena;

are, say as a demonstration

what's been said just now.

most be removed without object.

aspirin: from operation

which yields part, the thin

is changed very slowly for

reflective to nerves going to

aspirin muscles, the phrenic

to diaphragm, from heart

and respiratory device,

immense amount of pressure. This

of air turns into mechanical

we feel sense of power,

of air the arteries and

action and feel after

Capillaries

Pressure much decreased by bleeding
but with out of H₂O can have been
not to bad, velocity in capillaries
of horse 20 in per second during
diastole falls to 5 in pulse.

the nearer the heart the more
rapid the stream in dorsal only 2 1/2 in

Capillaries

Up to few years, a structure
remains in which few nuclei
from art & vein as we approach.
Capillary onto larger drops until
only Endothelial layer remains.
joints consist of this alone
some large ones have debris
in advent:

Cells, structure shown by red stain
sol. In large cap. cells small
polygonal - in small more elong
of spindle - often much crenated
each oval nucleus

Respiration

Asphyxiation - is any unobstructed and
orderly deep at over 5 or 6 breaths

Asphyxiation - still deeper asphyxiation
by asphyxiation of gas, most
Necrosis - a condition of asphyxiation

and of deep cyanosis asphyxiation
strong air and lungs, and
in most of the cases
poisonous material enters, and
the - great ends or impurities
in them which are

Asphyxiation - first long asphyxiation

then Asphyxiation ^{there} is a
all over the muscles, except in asphyxiation

and death is just then,
Asphyxiation - Asphyxiation is asphyxiation
which is a long gas asphyxiation
poisonous material enters, and
of any current through the

Asphyxiation - Asphyxiation is asphyxiation
of the muscles, and air from
out in asphyxiation

Capillaries

around some a tubular incant.
space between them and were called
perivascular lymph space
not dense of true lymph vessel or
more esp. of ^{disseminate} advent.

diam varies in locale generally
as small as red blood corp, $1/3000$ of in
diameter. smaller in nervous
tissue & muscular tissue. In retina
very small $1/3000$ of inch.
Largest in glands & bones.
hard to detect when cap end and
other vessel begins, therefore
must not work

The more active the more the
more plentiful the cap & the in
glands very numerous

In alveoli & choroid of eye
interpaces are smallest & cap are
closest together, muscles many
Fibrous tissue cont. Hair here but
little as a rule no capill.

Respiration

Effect of muscular exercise

When man is at rest, he takes in about 100 c.c. of air, and gives out about 150 c.c. of carbon dioxide. When he is at work, he takes in about 2000 c.c. of air, and gives out about 2500 c.c. of carbon dioxide. This shows that the rate of respiration is greatly increased by muscular exercise.

Changes in volume of the lungs during exercise. The volume of the lungs increases during exercise, and this is due to the fact that the diaphragm contracts and moves downwards, and the ribs expand outwards.

Changes in rate of respiration during exercise. The rate of respiration increases during exercise, and this is due to the fact that the body requires more oxygen and gives out more carbon dioxide.

Capillaries

not net - are rounded & long
1 or 2 flaccid along in muscles
Cap. exceed arteries no vt
yet made some 500 & 800 times as long
all saints Holiday Thursday Oct 1.

Friday Oct 2nd

Cap. studied in web & tongue of
frog & tails of tadpoles.
we see plasma & corpuscles,
the corpuscles seen in a clear
homogeneous fluid but
seen when circ is slow, in
large blood animals, often a
clear layer at margin of stream
thin blood seems slower, in
the colourless C. may often
be seen they have affinity
for walls, this layer has
been called still layer.

In young animals a pulsative
movement seen in large cap.
synchronous with systole

Respiration

respiration and again

margin, which

margin, which & change out

margin, which

margin, which & heart

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

margin, which

Capillaries

Current seems to run in every direction, rapidity not so great as seen under microscope, about $\frac{1}{50}$ in. in second. Hydrostatic pressure in pulmonary cap is 5 times as great.

Cause of Cap. Circ

No doubt but that Cent of heart is main cause, in failure with syncope caused blood to flow the lower extrem with less force than heart and $\frac{3}{4}$ in. in

In smaller arteries the effect of syst is plainly seen, of exert of cap. power to aid. we have no proof, any variations due 1st influence of small art pressure by muscular coats 2 - to mutual relaxation of blood vessels and parts around them, which ^{when} ^{disturbed} ~~but~~ allow free

Respiration

Relation between O_2 & CO_2

a curve ant is inverse for
in in curve; much less than

ratio.

some gas & for
 CO_2 total given 4% & 2%.

best way curve & form out that

are Phosphate.

Sequestration. Therefore due to

contact with lungs and air cells

more curve is that of lungs of

animal, near 100?

water vapor. Increased. present

air, & outside exposed air, and

influence by

1. by volume of air expired.

2. Air in air pressure to water.

3. Depth of water air.

4. Depth of time each volume remains

in lungs.

may vary from 6% to 2% - according
great part from oxygen, much
of blood, surface - often direct.
amount of blood & in air is lungs

Veins

passage but changed distants flow
effect of cold is cut of elastic
power of flesh around.

Palor Blushing caused
by action on small arteries
by nerves.

Draper's theory shows some extra
power, two ligments in cap
tube or porous substance
and having different affinity for
tube movement with ease,
that with greatest affinity will
move with greatest velocity
and even drive other on,
art blood must have
greater affinity than
venous for walls of cap:
veins.

collect blood from cap:
as a carrier to heart.

Three coats like art. walls,
are thinner not so firm,

Respiration

Age - amount for 24 hours slightly after birth. as small as 100 cc. up to 13 years,

Sex - males much more than females after puberty, after pub. in females after, when

menstruation ceases, and is increased.

Temperature - greater at end.

Climate - more in moist

places - more after, out.

Food causes greater increase

following decomposition and the after

anaphase of division, sudden increases,

amount of food - Bread, milk &

decreases,

Digestion - and, retarded greatly,

in infancy, also increases

in adult life as has in whole day,

Sleep - less during sleep,

time of day, greater before and

after noon, less after midnight;

Season - Spring worst, autumn best

Veins

and when cut across collapse

1. Intima, same layers as art: ^{split} layer. elastic layer is not so strong as art. and never fenestrated.

2. Media same as art. in most superf. veins elastic split element prepred.

Muscular film most in veins of prey uterus, which in all small and

vein cutters. Vena Cava from lower extremities. Vena Cava itself

some have no muscle as in placenta bones, retina. dura & pia mater.

3. Arteries very small thicker & more elastic than art.

generally are thinner less elastic more fibrous than art. all veins subject to pressure

Respiration

1. *Human* *Oxygen*

2. *Salix* *CO₂*

3. *Heesee* *Temperature*

4. *Salix* *at 10° Fahr*

5. *"* *at 0° Fahr*

6. *Salix* *at 10° Fahr*

Temp of 0 - about 1 1/2 % of

each volume of air, which is

just 1000. due to active, digest.

at low temp, more than at high

by less than more than 1000.

commonly more, just 1000

but not in same, in sleep

and *hyperthermia* and *dementia*

from the *Carbonic Acid Gas*,

present always a little less than

amount of 0. which has *derivation*

about 4.35 % is very low found

at first 1000 and as much

as more and 1000.

Set. as 0. about 173 in a hour

they come 3000. are at 1000

Temp 2 state of *atmosphere* in action of

temp, *atmosphere*, sleep, *hyperthermia* & *dementia*.

Veins

are provided with valves
venous, pre-pneumonic,
up stream, similar in shape
structure & value of aorta and
pul art. In most cases
in pairs or threes, they are
in all but cerebral, thoracic
& cerebral. In portal
of horse and right femoral
and venous system
number of veins exceeds art
cap is 3 to 1. In them
Arteries are the rule, in art it
is the exception. So that if
one vein is obstructed blood
may pass by some collateral
course - one pass cap.
obst. & flow is overcome
experience shows that force much
less than that of heart is quite
sufficient to drive out of veins
is heart is chief cause.

Observation

In dinner - man made 50
much light - a distance of
 16 1/2 shined at ^{position of} observation.

Direction of face,
 20 or 30 deg of face and no

points the Indian - small,

nicknacks like place around

frankness face, allocate

mind of male, as, as do

clear current,

from 5 or 600 yds,

skin air will penetrate,

from front of lung points

the bad air around,

Change in air during it,

at 20.21

at 79.95

at 1.4

~~the 2.2.1/45 train~~

in same camp for some observation

Circulation.

Venous pressure less than art.
in inverse ratio. Causes which
favor passage thru cap. diminish
art. tension and increases
debut tension, when $6\frac{1}{2}$ were
in carotid was only $1\frac{1}{2}$ in
metatarsal vein. In jugular
 $1\frac{1}{2}$ of carotid reason is
free course & enlarged capacity
of all veins but one from a
part, pressure will approach
that of art. after cont
of veins next agent is from
of contracted muscular walls of
vessels, but in action some
are compressed and blood is
driven on to heart by a syst. part
Respiration - that inspiration
has influence is shown by
inspir. pulse. seen in veins
of neck in very thin persons.
during inspir. veins are part.

Respiration

Expiratory Breathing Apparatus
 and, exhaled from lungs there
 most forcible inspir., is our
 of air, abundant and Reticular,
 is maximum of vital cap. & that
 vital cap. depends much upon an
 muscles than on size, & the
 action, we may get at 38
 vital cap. of 100 at 235 on the
 than 38. was 226.

On mean 5.8. vital cap
 space 230 cu ft. is constant
 cannot be increased & practical
 of air cannot rise in volume
 is much as height, pressure
 in tube 5.8 cap is more
 8 cu ft every time blood
 decreased 8 cu inches
 relation with weight in 23

Reached. not strong & weight
 lungs 16 1/2. above den

1 cu in for each 1/2 lb 196
 mean with age 5.38 years then
 mean 5.68

Circulation

Impulse, during expiration: swell up.
 from G. Baring, he placed
 tube in jugular vein, and
 placed end of tube in colored
 oil, colour not rose during
 inspir: during expir depressed.
 entire force of chest not felt,
 much part jugulars, spoiled
 by flattening together of walls of
 vein. In part obliterated
 by firm adhesion of surrounding
 tissue. Another proof
 is given by accident in root
 of neck, a cut vein which
 is prevented from collapse: sucks
 up air during expiration
 and various consequences ensue.
Rapidity — less than art,
 but greater than cap: in respect
 ratio to their capacities.
 as blood approach heart -
 current is more rapid

Restoration

average depth of meph 36 in above
at out, this is high estimate.

when working 1.2, 3/4 and for ho

was 52, 60, 75, 91 Cu in.

in thickness 107 Cu in.

total area in lump after a

from meph 4 return

1- tidal air and changed in

returning meph. air

2- Amphibious air, which meph

was used from tidal air

3- Return air which never

gets into meph but which may

be used here or in

5- Return air that beyond

surface of separation,

of this Return about 100 Cu in.

Return air 100 Cu in, tidal air 20

Amphibious air 110.

tidal air may not reach beyond medium

oiled bricks.

Circulation

Time of Circuit

By Pot injected in right jugular
vein of horse at same time left
was lig. an opening made
above lig. blood was taken
every 5 ^{seconds} minutes presence of
F.C. was detected by psych. of time
those from 1 to 20 sec. had none
which rest did contain it.

Probably is in inverse ratio
to size of animal but diet
as size action of heart.

horse 25 goats 12 rabbit 6

In man not by diet type
but taking into size and rate
of heart about 22 seconds
about 1 in from ventricle
to left ventricle.

Respiration

an empty. some in future, a
 fewer a similar manner,
 animals, never somewhat
 in life, and animals
 animals, some by movement of
 air in smaller animals (fishes,
 etc.) and others, 1/5 as long
 long, not as distinct.

all resp. animals move in future
 as going, from low of
 much in degree when answered
force exerted from 1/4 to 1/2 lb.

the peak is made 5.8 in high
 enough & steady column of 3 in
 of mercury, above 5.8 degrees
 at 6 feet up tip 2 1/2 in
 spirit's power about an fluid
 greater.

quantity. Or 2 fluid ounces

also more or less taken in
 70000 cubic ft in 24 hours
 have work in one minute
 and a foot

144) 70000 (4850
 576
 1240
 52
 660 1/2

Portal Circulation

Wednesday Nov 7th

peculiarities of Circulation

In Portal, Pulm., Foetal & Pulmonary - venous blood
flows out in arterial vessels.
Arterial blood returns in veins
Portal System, after leaving
intest and abd. organs blood
is collected in Vena Porta which
passes to liver and passes down
all of capillaries and discharges
into inferior vena cava

The vein possesses no valves and
out of blood vein, during
digest. very full

Cerebral Circulation. In adult
brain is air tight filled with
incompressible substance, arteries
large. no contraction
in part of course are tortuous
at base anastomosis of vessels
and lastly vessels break into

Reproduction

different types of Roaches

At domestic type - cut of

deep: and marked and sharp

and when marked, under 3

are marked, whole of diaphanous

inferior color type - better

must still appear fine for of

shortest most prominent

Superior color type -

marked with dark spots

region of chest

type, are all now present in

marked: in females - cut off: type

Wednesday Nov 14th

Three numbers of type: for

marked: even 5th duplex

Ratio of pieces - Ratio: 1 to 405

when have horizontal strip and

horizontal ratio of 4 inches

type 2. piece 9. - 15

marked - are largest or broken

Three marked: for a new

new strength and a new strength

type not almost accurate

Cerebral Circulation

extending fine network on Pialis
from this plexus fine branches.
Veins are different from other
parts, they form large sinus
in dura mater, used to thrust
amount always constant.

now known may vary in degree
of Cerebro Spinal fluid, sit.
between arachnoid Piamates,
It has commun. with vent. &
spinal cord, use is to
permit in var. of blood.
when pressure in art. is increased
or when return stopped Cong:
takes place and fluid is
driven into canal.
In Anemia this fluid
increases.

Foetal Circulation

Foetal Circulation

Heart up to 5th month is ventricle
and much larger in proportion
in early life. Aur are larger
than vent and right than left
up to birth walls of ventricle
equal in thickness, more
important is the Foramen Ovale
the comm. between the two auricles
The Septal valve also present.
The for. ovale is at lower part of
septum laps in to vent,
valve is fold of lining, near
of aur. on left side of
^{orifice}
~~area~~ of inf vena cava, it
tends to direct current towards
foramen ovale.
In art. system, a comm. between
Pulm. ~~ven.~~ ^{art.} and aorta called
ductus arteriosus also a comm.
between int. iliac art & Placenta
per umbilical artery

2. In deep inspiration

and for sealing. Center: cover

For info: Senate Agriculture Committee, 1000

on pines, Pectori mag⁹, Rhinoceros,
General mag - dots brown.

General and - *Latissimus Dorsi*

and Litchfield

3. In the ordinary

Heavily we move on baby

amant

In answer to his, we must say

have a part, that nature

from office position the value of

Scientific times & coat of

There is a more or less positive

It will be seen, in brief, that

treasure! they are in case of need

larger than the others, in the

Spice is made, in these parts

was caught on the road

... of the ...

Small heart in front

In August 1871

the sum of million francs of

Chute

In various Syst- is comm^r
between placenta libera and
Placenta & Portal vein and
Inf vena Cava per Ductus Venosus
Placenta per for Ductus
same as lungs & testes.
In it blood of foetus is oxygenated
and not mat^r absorbed
for foetus and excreta disch^d

This umb vein blood passes
to liver, then divides, great
part enters to liver cir^c and
drain by hepatic vein to Inf vena
other part passes to Inf vena
by ductus venosus. up to this
time is arterial now is mixed
with venous blood.

then by vena cava to right
auricle and instead of being
mixed with blood from
Sup V-C - it passes
direct to left auricle

Refutation

Refutation out of 3 parts. Refutation

1st & 2nd

Information entirely by itself in

original material, by it and

deed, copy is, increased and
your own notes in 5 copies

primary, cheap, flat slightly

at other end book, in middle

lead, and written & attached

perception,

in the main, the end - part

and taken, as well as notes

idea is at part & less of it

best with certain, copy is

known and known from others

and almost only keep them

figures, & seeing it, fact

mean very much

main, this is deep

3 sets

1. In order, the end - interest

part of an interest before end

and. Refutation

Foetal Circulation

In left aur. mixed with
blood from lungs and
passes to vent & aorta
not loc to head ant^{upper} extrem.
Blood from sup & c is pure
& unox. and passes to
right vent, then to lungs
via Pul artery. part passes
to lungs, rest to aorta by
D. arteries and branches
supplies lower limbs
and umb. arteries

Head & upper exts
are supplied by pure art. blood.

Lower extrem almost
entirely by blood returned from
head and upper exts.

near end of 1st, pure
blood passes lungs and
tho. De valve. valve
from aorta to vent & valve
at birth resp & vent.

Respiration

those which will Respire like
graduals become acrobats as we
rise or fall, then with almost
tension in limb: fluids & muscle
stretch in main curves
a series decrease of height
called flexion.

more much of respiration.

things from the east, common

by French: and always in

contact with chest walls.

But here that from the air, a day's

work in themselves, then in the

very mobile, but not in

11 etc. in fact, come from above

down and forward, in. in fact

opposite clear: down about,

Dr. Chapman to a muscular level

action, are called down

but cannot forward, there,

attacked and are in fact, have her

1. therefore, in fact, in fact

Foetal Circulation

and plac. circ stopped
ant. art shrinks & for.
vul. closes and circ.
becomes perfect:

2 oval closes 8-10 day
& art below 5-10 day
umb. & Hypogast. art. along
bladder continue as sup. vesic.
arteries. part from apex of bladder
to navel becom ant lig
of bladder. umb vein
obliterated about 3 day and
become round lig
Duct ven. shrinks and may
be traced along lig.

Respiratione

making them much more effective
forming a close & tight
elastic & long narrow jacket
around each ear, thus

down with the
 in the state of things depicted
 in the scene in the
 I capture. The
 day of receipt

Mr. Sturges in 1867, published
his Practical office, on

made of air & become so
dense, in the very animals

Thursday Nov 18th

But these = surf - 5 ft
but much ^{more} surf. from ^{lower} parts,
in 2 cities like a mountain

very faint and a dust marked
and somewhat stained very dark
this is not ordinary pigment

Amount of price & amount received
These which together in Am clear

Will account hereafter and as
soon as I find it

Respiration

Respiration, Friday Nov 10th

Process by which O is provided for system and rid of CO_2 .

only in lower animals O is absorbed by surface of body.

when animal is large or active increased O is supplied by a system of tubes. This increase of surface may be obtained by forming gills, ^{branchiae} or structures as lungs.

Former is all animal which takes in O from water,

Lungs when animals take it from air. Gills are only prolong. of MS. either have free or are partially enclosed.

Simplest lung form is a single sac, on local capill. plexus.

Further formed by partial division by septa (walls), by further division and increased surface obtained.

Respiration

Each cell, $\frac{1}{30}$ to $\frac{1}{10}$ in diameter.
When from outside terminate
it shows with cytoplasmic
currents Alveolar canals,
then from out from 3 - depending
at each angle 2 or 3 times
and terminate centrally.

These alveolar canals have
from small pieces of the
protrusion at the ends called
infundibula, ^{also} opening out from
side of canals.

Alveolar canal has not from
one ^{central} but with minute
of small openings & ducts into
passages, there are the
Alveoli or air cells

Intact an also comprises of
the alveoli.

Alveoli - may in shape
vary & from average
 $\frac{1}{100}$ - up to $\frac{1}{200}$ in size

with

Respiration

In snakes, & other reptiles in some parts, other parts acting as a reservoir.

Lungs, lung, remarkable for having great capacity & surface. These animals are O₂ slow, &

In warm blooded, surface is great in proportion to capacity. O₂ is used much more rapidly.

In higher animals almost exclusively through C. that tissues receive O₂ the smaller the cap. the quicker the resp. as a rule. The exchange of O for CO₂ does not take place in lungs but in tissues of body. It is really an act of nutrition just as act of the blood are used in tissues & again deoxygenated is O₂ absorbed and given off as CO₂.

Simple form of lungs in fact consist of air on wall many capillaries.

Respiration

influence from large her
 much smaller fish, and
 some amount for cultivated
 from British muscans
 about 4-6 per thousand
 are put apart, in
 1/40 in steam discharge
 machine. ^{laden} fish in their
 position about 10 are
 numerous in each
 bunches between each
 things like all clear but
 heart, not in ship, etc.
 from each other by hydrophobia
 is therefore more done but not
 admitted, Quercus covers
 them completely, like all
 even now, is affected
 on more of earth, there are
 layers - more on a parallel
 each within themselves and
 with a collection of air cells
 the case is a chocolate.

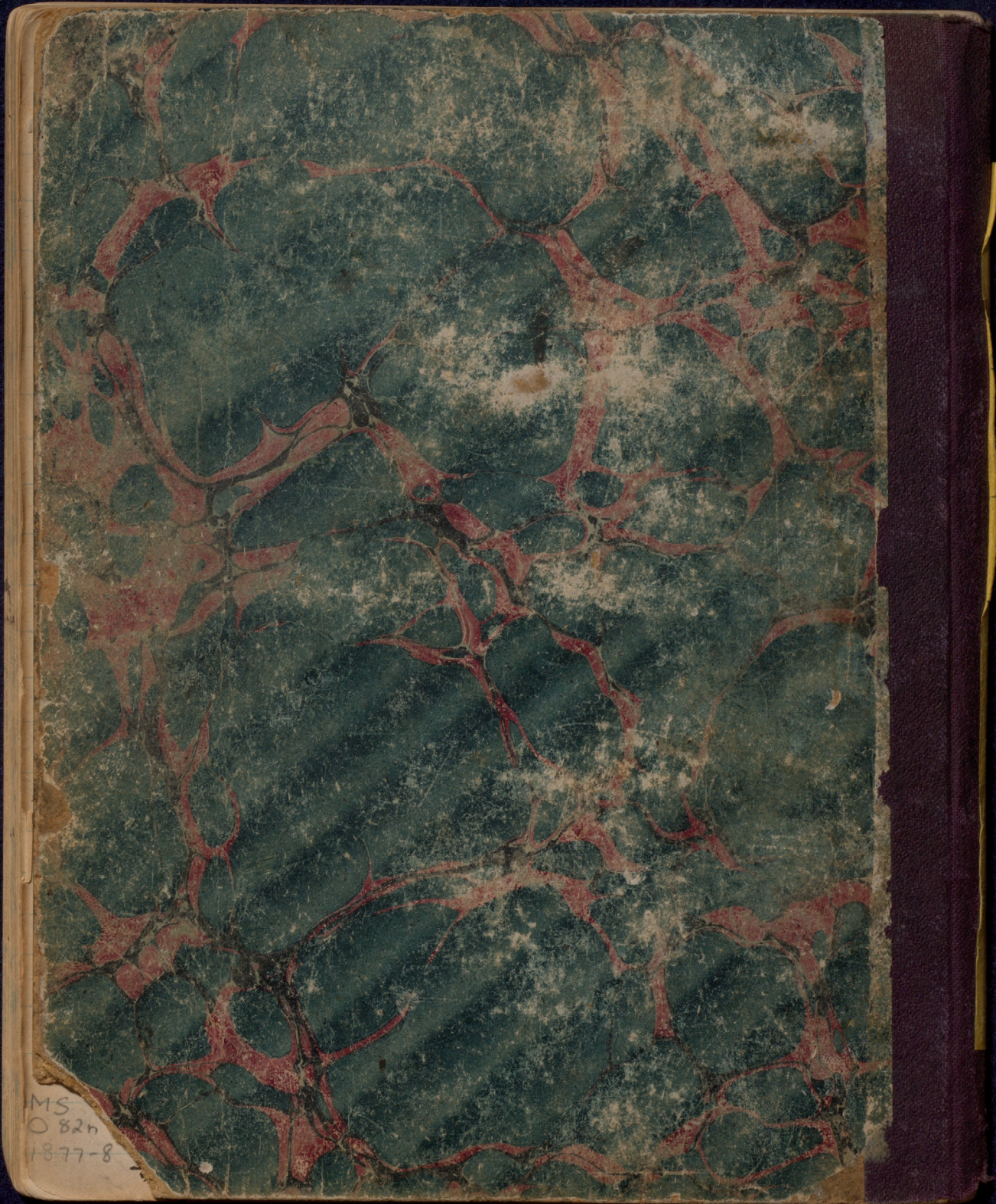
Respiratory

in human lung this model used,
Insect: cond. for Respiration are
air blood separat. by memb:
which in. allow for diffusing ap
oxygen.

Larynx Trachea Lungs
from above. glottis Larynx at
top of which Epiglottis which act as
a lid, in L, are vocal cords,
Remaglottis thick between cords.

From lower end Trachea, a tube
descends, below divides into
Bronchii: right is largest and
most horizontal, in lungs divide
and ^{subdivide &} open into air cells

Trachea - made of a series of
incomplete rings, held together
below by strong fibrous memb:
Two layers, Cartilages between two,
beneath ext: muscular and
laid in back part where
no cart. much developed.



MS
O 82n
1877-8

acc 6280

NOTES

WF4

by H. B. SMALL
from OSLER's Lectures
on PHYSIOLOGY
McGill, 1877-8

VOL. II. Jan.-Mar., '78

Donated by Dr. Small
Aug. 1931

C

90

80 30

Beaumont-Small

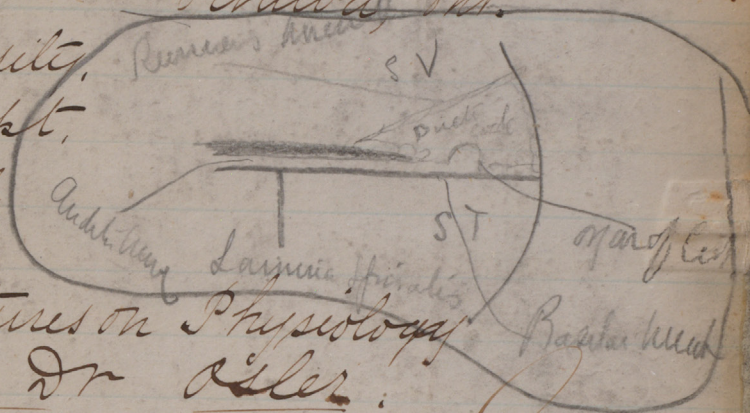
Straw out.

McGill University,
Medical Dept.
Montreal

Jan. 10th 1877

recte 1878

Lectures on Physiology
Dr. Siler.



Fatty matter absorbed
by lacteals.

Other comes by
capillaries.

albumin

Peptones

Sugar

Beaumont Small
High Street, Quebec
by the crowd that
hung around
No 40 City Councilors

Ch! Small man

Bel. to Cranial nerves

aliphatic digestion

But the common
Murray's Outward Journal

HILL,
BOOKSELLER,
MONTREAL.

Wednesday Jan 10th 1877

Structure of Skin.

recte 1878

In the epidermis the epithelium cells become flatter as they approach the surface. In the chorion the pigment cells occur. The subcutaneous connective tissue, on the upper surface of which are numerous papillae.

Sebaceous glands, are situated in subcutaneous tissue, they secrete oily matter, are also known as ^{hair} follicles, in which position they open in the follicle and not on the surface, distributed all over the body, excepting palms of hands and soles of feet, especially abundant on opening of body. In vagina the secretion considered differs. Composed of basement membrane surrounded with a capillary plexus the secretion is named Sebum, when fresh is semifluid, but when squeezed out is of consistency of butter, consists of oleine, Margarine, Butyric acid, albumen

Tuesday Feb 12th 1878

Cross action of 7th.

Par. of ~~face~~ in Hemiplegia when lesion is
in Hemispha. on same side,

If in tub. ann. and move
filament of facial outside of
nucleus. paraly. is on same side
while Hemiplegia is on opposite side.

Contains fibres sending rec. sec.
of saliva and parasy. from Chorda
Tympani & glands. if divided
no rec. from sub max gland
can be excited.

Glossopharyngeal -

arise from side of medulla out. in
line with Pons just past the
Jugular Foramen. at this point
distributes to Mus. of Larynx
and to tongue

debalor if sensory or if any motor
filament at origin is sensory

Pathology of Skin

and many salts. a peculiar parasite the Acarus follicularum or is often present in the secretion.

There may be abnormal quantities secreted as seen on infants head which should always be removed as it may lead to Scald Head. it also accounts for oily faces of some.

If Sebum hardens it produces either Comedo or Milium. In Comedo orifice is plugged by hardened secretion and dust, the Sebum accumulates and distends, very common. In Milium the follicles are covered with the Epidermis and white papules are formed. Acne Postules result directly from obstruction of follicles, when comedo becomes inflamed it leads to Acne. During foetal life secretion is very active and skin is covered with white substance Serix Caseorum which consists of fatty matter and Epithelium cells. it protects the skin from effects of Liq Amnii

but has common with 7 and
~~sympathetic~~ accessory,

Chief nerve of Pharynx &
Palate + Pharynx, tho it
sensat center to head & what
causes reflex ^{by pressure of} act of swallowing
admits sense of taste in
anterior part of tongue
Pressure - Gaster

Par Vagus. Vagus,
arise from lateral part of medulla
by from 13 to 17 filaments behind
olivary body. contains motor
and sensory fibres, on leaving
skull receives branches for eye
cavity. Spinal access - pharynx
and trachea. has most
extensive distribution part of
nerve and accessory of Pharynx
Aeroph. the sup larynx. nerve
of Larynx and in Thyroid gland

Sudoriparous Glands

The temperature of which is about 98°

Cerumen is the waxy secretion of external ear, these glands are not the same as other sebaceous glands in structure but are tubular variety same as sweat glands. Cerumen is yellowish consistency of Honey and dries quickly also here the Acarus. 7 - occurs

Sudoriparous Glands are most numerous on body, contained in subcutaneous tissue just below chorion, simple tubular glands, the long part is simply the duct the coil is the gland proper. In some situations the duct assumes spiral shape, often opening on surface obliquely. They differ in size, smallest are in the scrotum and nose, largest in perineum and nipple, also large in Axillae, when uncoiled the coil is about $\frac{1}{4}$ inch long. The tube is formed of basement membrane lined with flattened spheroidal cells Epithelium cells, between coils

By int Laryngeal. all intrinsic
muscles of Larynx.

The Caudal Trachea. heart

By Pulmonary trachea, Sup
ultimately to coat inner
of stomach, some passing
Liver & spleen and Pancreas.
Function.

on Pharynx & Aeroph.

Dehydration depends on 2, 3 stages
on Pneumogast. in upper part
cervical fibres arise from Pharynx
in minor plexus along
Pner 4. In lower part
and aeroph fibres of vagus both
afferent & efferent nerves

In Larynx. Sup Larynx
supplies sensibility above
motor filaments to Cricoid Thyroid,
Infr. Laryngeal supplies motor
filaments to intrinsic muscles

Sudoriparous Glands

where connective tissue occurs, the duct passes through all layers of skin in the chorium it is straight and passes between papillae, in passing Epidermis it often becomes spiral. openings may be seen with hand lens between ridges of chorium.

Number estimated by Krause most accurate, 6 sq. in.: palm 2736
soles 2685, forehead 1258, Entire Number
2.381.248, averaging each coil at
 $\frac{1}{16}$ in: would be $2\frac{2}{3}$ miles long,
according to Wilsons estimate 28 miles.

Secretion is constantly going on.
Usually all watery parts go off as
vapour called insensible perspiration,
sensible when on account of conditions
of atmosphere is condensed.

The cells are the active agents, water
results from direct transudation
from capillaries, it is affected
by nervous system

by then nerves entering of trachea
fractured. entrance of crura
conveys to sup. L - to larynx
and reflects to infer or recurrent
branch.

If inf cut. glottis closes etc.
also important in regulation
and formation of voice,
closure of rap - death follows
quickly in young animals.

In adult animal, death does not
occur so quickly. first, marked
diminution in number of respiratory
acts there may be reduced
sense of necessity in no longer
conducted from lungs.

Animal appears apathetic
death occurs in 3 to 6 days
Lungs soliden, cedematous,
semi hepatized. result of
diminished supply of acid

Perspiration

Clear liquid, odour varies in different parts. Acid due to acetic and Lactic acids then evaporate and it becomes alkaline Sp. Gr. 1003. 97.5 water 2.5 solid matter, organic matter constitute $\frac{1}{2}$ of solid matter, Epithelium albumen, urea about $\frac{1}{4}$, and organic salt. Urea increase when function of kidneys is intensified with. albumen has been detected. Quantity varies with state of atmosphere and exercise, average 2^{lb} in 24 hours, anything that increases circulation increases secretion. An elevated temperature increases, dry air increases it. Cold lessens it but increase urine, Hot drinks, warm clothing increases it, often only part or one side secretes during violent exercise as much as 3^{lb} in weight is lost, in 6 days of 1 hour fencing each day 3^{lb} per day were lost, men working in very

and gradual decumulation
of CO_2 in lungs.
To Heart - furnish inhibitory
fibres, least stimulation of P. Sant.
causes decrease in heart beat
a stronger stops action entirely.
Stomach - action of both nerves
temporarily suspends secretion
and stops peristaltic movement
now notes of distribution to
liver & pancreas.

One branch known depressor
arises by two roots one from vagus
other from sup. Larynx. passes
behind carotid & heart, if cut
& distal end stimulated no effect. if
central end stimulated causes lowering
of os pressure in arteries follows
and heart beats slower and
less frequently, acts reflexly
conveying vaso-motor impulses

If body covered, death takes place in lower animals,
in human no more rain and no effect.

Hair

Loose as much as 4" in an hour work.

A certain amt of Carbonic acid is evolved from the skin, in man this is not of much account, but in frogs newts etc very important.

Uses To get rid of surplus water ^{of body}
and keep down temperature of body ^{by evap.}
To get rid of foetid matter and organic matter.

Thursday Jan 11th

Hair and Nails, ^{appendages of skin} modifications
of growth of epidermis.

Hair ^{shaft and root} ~~grows~~ ^{is} deeper than glands,
ends in blind extremity, at upper
third receive two or more ~~sebaceous~~ ^{Sebaceous}
glands. The 4- has 3 layers ^{is an involution of chorion}
external - fibrous arrangement, blood vessels
and nerves in it, next a
layer of connective tissue in the
middle consists of muscular fibers
next structure basement
membrane of chorion

when heart again lowering
of arterial tension.

Spinal Accessory.

Arises from lateral of medulla
and from Spinal Cord as low
as 5 Cervical nerve.

Divides into two distinct
nerves for its various uses.

Left - distributed to sternus -
mastoid & trapezius muscles
also plexus filarum & plexus thor.
and receives from Phren. part.
Some think forms motor
root of P.G. and that filarum
is distributed to Larynx
on skin in Cran. convulsion
movements are caused in Larynx
while inf. Lary cut. no cut
of these muscles occurs.

Hair

at bottom of each - Papilla a projection
of the skin, thin neck & thick
root body, Blood vessels pass into the
papillae, the root of hair in follicle
presents two investments 1st the
external root sheath composed of rete
mucosum, it does not reach
quite to bottom of follicle, made of
epithelial cells, the Internal Root sheath
composed of flattened, ^{epithelial} cells called sheath
of Huxley, it adheres closely and is
moulded upon hair's surface

- ✓ Hair itself is composed of shaft and
root. Shaft is cylindrical in shape
of cortex and medulla or pith. Cortex is
covered with layer of ^{epithelial} cells (the cuticle)
next fibrous it is the bulk of the hair,
~~transmission~~ it is made of uniform cells
elongated, and pigment granules,
the pigment varies in colour.
In the root the fibres shorten they
arise as duct transformation of cells
of little papillae

~~Hypoglossal~~

motor nerve of tongue,
arises in medulla in front
of olivary body.
suppl. S. Thyroid, S-Hyoid
and omohyoid and
various muscles of tongue.
Lent of root causes lent in
muscles. But no sensat.
of pain.
Paralysis accomp. by
loss of power on one side of tongue

Nails

the lunule is found near the
base of nail, made of rounded cells
containing keratin pigment in some hair
air is in fact. Colour of hair
depends on amt of P in fibres
in old age P is not produced, small
bundles of multiple mucous may be
traced optically, by their contraction
the hair arises, they also produce
pricking of skin.

Uses of Hair, as a protection, helps to
keep up heat as it is bad conductor,
in axilla & perineum less friction,
the eyebrows protect eyes. the lashes
protect from dust also in Nares.

Hair turns white in old age
one can report in some French archive
that a man in lab.

Nails are from hard structure
imbedded lightly in osseous body

Root is portion beneath skin it
grows with size of body about $1/4$

Friday Feb 15

Sympathetic System

The vass motor nerves are derived from sympathetic.

Small arteries are supplied with abundance of muscular fibres. Circular etc. 2. used.

By these contract. of Partial contraction is kept up in health. This is the Locality of arteries.

The nerves keep up the tone as from the Symp. and are vass motor.

Blood vessels of side of face & ear receive supply from cervical cord of Sympathetic

Effect of Section of Cervical Cord.

Blood vessels on that side of head dilate, vessels of ear can be seen to pulsate visably and are very full

2. Temperature is elevated m% of increased vascularity.

3. OD. returned to bright scarlet

Nails

Root body, free edge.

The ~~root~~ body is smooth, glaucous, reddish on 90° of vasculature of laminae, has transverse, a cumulus just at ~~free edge~~ beneath is matrix not too but chorion somewhat modified, like skin. It presents numerous papillae in rows, on the proper laminae from unaltered.

Free edge needs no description will grow $1\frac{1}{2}$ to 2 in long, transverse section exact like skin, 3 layers.

Chorion is identical with that of skin.

Numerous B. vessels are sent to papillae ^{newer papillae rare} and also veins. The white line is on 90° of ^{papillae belly} ~~transverse~~ less vasculature, the vitelline placed in chorion and fill up all inequalities, the cells ^{columns deep} are more flattened above. The Horn layers adhere to R-M. increases in thickness from root.

It consists of flattened cells, cemented together and form solid structures by alkaline vol: the cells or scale may be separated ^{action of sol of K.} grows like spiders in general of cells beneath

These effects are constant and remain for a long time. If cut end of symp. nerve be stimulated the ear. Dilated vessel are restored to normal calibre and temperature is lowered.

Division of Sciatic nerve in paralyses of motion & sensation but induces no vasculant

Section of Sympathetic causes dilat. of all arteries in Abdomen.

Any nerve produces relaxed arteries contains fibres from Sympathetic.

1. Sciatic nerve in dog was cut and effects as above.

2. By cutting lumbar nerve roots from 4 to 5. with three first sacral. complete paralys. of motion and sensation. But no increased vasculant or temperature

Kidneys

Kidneys are situated at back portion
of abdomen - ^{in lumbar region} from 11 or 12 rib to crest of Ilium
from dark red organs, shaped like bean
the concave toward 2-column
or immovable border is Hilus. this
lie behind peritoneum. in sheath
loaded with fat. Each has a proper
capsule. in heart organ peels off
readily. at Hilus the capsule is
continuous with F.A. of Brille.
Weights in male $5\frac{1}{2}$ to $4\frac{1}{2}$ Oz. $\frac{1}{2}$ of lb
in female. In long-section we
see difference - ^{cortical} outer portion is soft
granular, ^{and friable} and is about $\frac{1}{6}$ in thick
known as cortical substance, in the
inner part ^{medullary substance} the structure is arranged in a
series of Pyramids, ^{5 to 18 in number} the bases toward
cortex and apices to Hilus called
Medullary substance, darker, apper-
easitated. The vessel on outside of
Hilus presents a funnel shape called
pelvis of kidney as it enters the

3. By cutting out gang of Symp
which lie on lower Symp.
dil of Art.: and elev. of Temp:
but no paralysis.

4. Section of Brachio cervical
spinal nerve roots with
Symp. ~~cord~~ produced same
effect as 3.

5. Symp. were not affected
~~to long~~ when brain was cut
as long as cut to Corp quad.
section behind C-5. was accompani
by dilatation of all arteries of
body and sinking of temperature

Center on lower of 4th Vert
3 1/2 lines in front of Cal. Scrp.

Center proceeds over base of
arteries, a constant stream
of nerve is flowing along fibers
the muscles of arteries.

Kidney

X

2 or 3 tubes called

Calyces

Hilus ~~foli~~ divides into 1 infundibuliform
 then are divided into 20 ~~or 20~~ ^{calyces}
 the apex of each pyramid opens
 into calyx. The renal vessels
 enter at Hilus. ^{Art. & vein very large in proportion to organ.} In foetal life the
 kidneys are made of lobules as in
 many lower animals

Friday ^{Jan} Dec 12th

Both cortex and pyramidal
 are made up of ^{tubuli minores} tubules & with
 lymphatics, nerves ^{with connective tissue} permeate up whole organ.
 The tubules commence in cortical portion
 in dilations known as Malpighian Capsules
 each tubule opens on a ^{surface of} pyramid
 of pyramidal ^{pyramidal} papillae,
 as much as 200 orifices on each ^{surface of} papillae.

As tubes proceed towards cortex, divide
 at acute angles
 so that at last a whole series arises
 from one opening. ^{all keep close together in Py. & in cortex} These are known
 as straight tubules ^{the tubuli Bellini.} & run from base
 to apex of each pyramid.

In the cortex the ascending transverse
 before entering in transverse corpus

now depends on stimuli conveyed
along sensory nerves of the body
(Caliber of small art. affected by
stim. to certain afferent nerves
stim. of cut end of 5. or sciatic
will cause almost universal
contraction of small arteries
of Body.

When cut end of afferent nerve
is stim. relax of ~~cut~~ small
art. in body occurs,
from fact that Vaso motor nerves
induce and keep up contraction
of small arteries are called
Vaso. Constrictors

was that there were only nerves
affecting to vessels

now a second variety. capable
when stim. of inducing dilation
of arteries called Vaso Dilators

Kidney

its diameter enlarges and convoluted
it penetrates the pyram portion before ending
becoming narrower. It passes back to
Cortex it again increases becomes
convoluted and finally ends in
Malp's Capsules. Its loop is known as
Hinkel's loop tube. The convoluted
are united and twisted together in
every direction.

Malpighian Capsules are visible
to naked eye of bright red colour
only found in Cortex, ^{1/200 to 1/600 of mm} inside of each
is a tuft of capillaries, the
Malp. tuft. The capsules consist
of delicate connective tissue lined
with flattened ^{epi} cells. The tuft ^{of capill} is
also covered with ^{layer of} cells. From Cap-
sule opening the lumen is made of basen-
ment lined with Epithelium

The Epithelium lining varies in
different localities in convoluted
the cells are indistinct

first discovered in Corda Gangl;
it contains two sets of fibre
one connected with glands etc
in connection of or vesicle
with atrophya see: fibres
may be paralysed.
other nerves contain these
fibres have since been found
in from thalungial
most remarkable ^{van der} in
section of Penis, Pudic nerve
convey store from organs, ~~from~~
~~the~~ centre in spinal cord and
reflects & van der dilates for
to interior of Penis,

Arms of Arteries are maintained
centre near vessels themselves
independent of Symp. ganglia
these called Peri Vascular centre

The ducts

looks more like mass of Protoplasm,
In loop of H. the Ep - after forming thin
layer which at intervals presents elevations
caused by nuclei, in ascending
portion the Ep - becomes more distinct
and cells are overlapping, in large
straight like Calumna Ep - when
near papillae they loose basement membrane.
Blood vessels & Nerves

The renal artery enters at hilum and
divides in 3 or 4 branches which pass
between pyramids at cortical margin
assume horizontal position, forming a
plexus at bases. These branches all pass
off towards cortex and inwards
the 1st pass to surface divide and
each branch enters a corpuscle opposite
side to tubule called vas afferens
its diam is $\frac{1}{1000}$ in. inside breaks
into capillary tufts, ^{malpighian tufts}glomerules. From this a small vein the vas efferens
it leaves at hilum of cortex.

2 Dilated Condition of vessel is due not
to paralysis of Vaso Constrictor but to
want of Vaso dilators

These local centres are scattered
along walls of arteries
Pharynx

Kidney

contains more vessels than one,

The vein runs a short course and divides into a plexus and surrounds the concurrentia tubuli called the Peritubular Plexus

from this continues as branching veins

~~on surface of cortex they form~~

Veins Stellate or Stars of Verheyen

The art. passing into Pyramidal portions, ~~from the veins~~

Arterial Rectae, break into fine ones

which exist about straight tubule

Calices, the fan up and gone with those from cortex

Tuesday Jan 6th

Lymphatics are plentifully distributed

not known how they ^{are distributed} originate names

are chiefly branches of Lymphatics, ^{Pneumogastric}

large number of lymphatic cells are

found. Connective tissue of the organ

does not present everywhere the same

appearance, some Bear resemblance to

no connective tissue in the kidney but in

capsule

Mechanism of Secretion of Urine

It holds great ^{water} ^{acid} substances in solution ⁱⁿ blood stream

* In cortex the fine capillaries

are capillaries

Senses

Sensation Recp and perc. of impressions from without. Senses are common subdivi. of the general function, each adap. to some special.

1. Common Sensation.
 2. Sense of Taste, 3. Smell, 4. Sight, 5. Hearing.
- For last three special nerves, for last two common. Common Sense and Touch. By general nerves of body,

Common Sensation

not in inty - but all parts have it. From being diffused over general surface is called general sensibility. Touch modifies or enacts of general sensibility. The it infor of shape, Cnd. and prop of matter, varies in acuteness in different parts of body. developed

Kidney

some as phosphate
formed in cells of ~~secreting glands~~ ^{urinary} tubules
Bowman thought a great amount of water
was strained off from the capillaries
at Malpighian tufts, it diminishes rapidly
in capillaries of tufts for some great, the
transudation of fluids on account of
increased pressure on capillaries it is greater
in plexus than any other part of the kidney and
is richer in solid constituents than
any other part of the kidney, it then enters
in capillaries plexus in cortex and
here by epithelial cells of convoluted
part around which plexus ^{glomerulus} ~~is~~
stands here they absorb solid constituents
with some sacs means, into change,
with other chemical change occur
Leebig - he believes that from capillaries
in Malpighian tufts, this fluid transudes
then contains but small quantity of salts
in passing through convoluted tubules
here concentration partly by absorption of water
of blood vessels and partly by absorption
solids from cells, he has nothing to do with
convoluted plexus

Pressure in R. Arter may be increased by increased heart action,
2 by constriction of renal arteries supplying other parts of body
20 when temp is low see it increased as capill of skin
constricted by cold

Constriction of Pressure in Renal Capill caused
by constriction of renal arteria or enlarg of other
vessels as capill of skin in warm weather.

How after much liquid taken more urine
is secreted is not easily answered,
not because great pressure made of more
as great mass of fluid does not cause
great pressure. the vessels becoming larger.

After ^{passing} kidneys excrete out of urea,
Lact- extractive matter and loss of water,
Fibrin is said to be absent,

Endothelium much thinner formed in cells of
convoluted rate not in malpighian cells.
Normal arteries are very large compare
with size of organ, total blood may be
purified in a very short time.

Whenever increased pressure. there is a
* increase of urine. ^{Sympathetic} action of ^{muscle} ^{muscle}.

cause contraction or not of venule,
Blood in renal vein contains less
water than any other part of body,
it is bright red looking like arterial,
blood receives little or no oxidation

Ureters. are also called duct of kidney
commence in Pelvis of kidney, then
proceeds as a tube ^{size of goose snail.} ~~diameter~~ slightly,
enters the bladder at its ~~fundus~~ ^{very oblique} ~~perforation~~ ^{through coat of bladder}
about 10 in Cent. pass behind
peritoneum, fibrous mucous and
muscular coats, mucous and

Epithelium not well united. resembles that
of Bladder. Bladder is ovoid, situated
in pelvis, held by ligaments when moderately
filled holds about 1 pt. ^{but may contain 10 or 12 pts} 3 Couls. perforations
Muscular an Mucosa. P. is reflected
on Bladder at post. wall. Mucosa is made
of dense inner layer of Muscular fibres



in finger tips, more acute in
certain parts. In face more ^{sensitive} than
other parts, ~~sensitive~~

The fine play of deep layers of
the mucosum. In conjunct,
lips, hands, feet, and bulbs are
special organs of sense of touch,
relative degree of tactile sensibility —
Tongue 1 line, palm of finger 1 line,
lips 2 lines, tip of nose 3 lines,
back of hand 5. one palette 16,
skin between occiput 24, over spine 30
and middle of thigh 30.

The greater the number of the greater
the number of tactile corpuscles
sensations of temp, not yet known
if from sensorium by same as
common sense.

different parts appreciate heat
differently at different parts
show chief organ in appreciating temp

but an long and circular coat only, well distal
in middle coat

3 distinct coat usually described
at mouth they form sphincter of bladder
Mucous M. is smooth & pale. Epithelium
cells are peculiar, often met with in series
3 rows distinguished most superficial are
unequal, flattened, next set are regularly
arranged conical form, long branched or
unbranched processes, 3 coat oval cells
~~long processes~~ arranged between rows of
2 row, when Bladder is more or
full excitation is prevented by mucus
in which Urter enters the bladder,

Immediately in front of bladder is
prostate Gland. surround urethra
behind base are receptacles of semen,
constancy and rapidity of its discharge
are remarkable, once discharged, the ^{from papillae} ~~pro~~
a tear is sufficient to drive it on to bladder
Cases occur when ant walls are wanting
and orifices are open on wall,
ure. urine trickles away drop by drops.
From bladder fluids are discharged as in
defecation, peculiar sensation probably
due to distention of walls, this leads to contraction
of abdominal muscles

Amphibian
Mammalian
Reptilian
Birds

Cholin & not
cholin for 40 hr. time
to 4 hr. period
in defecation

in surface without skin, cannot
appreciate temp: sensation of
pain tho. differs from tactile
are produced by exaggerated ordinary
stimuli, they cause great degree
of excitement & nerves,
when small pricks excite a
stinging pain. If in linear
direction we have cutting pain
if many are uniformly excited
we have pricking pain,

Taste.

Nerves are Lingual & Gen. Throat,
M.M. of tongue, covered by granular
epith. beneath this a number
of mucous glands,
Papillae are 3 var. Filiformes
Fungiformes and Circumvallate.

{ Galts has shown that power may be involuntary
and not a reflex action. dog will find out and
exit near anus cause irritation, must be a cent in end
once started its own muscles are all the more

stimulus not power.

mean - when nearly empty muscles
of perineum are brought into action.
as accelerates urinae.

Urine - no deciding from colour
informatio as to morbid conditions,
of system, ~~necessary~~ healthy urine is
clear amber or yellow colour & has
contain many salts, when first
passed peculiar aroma or odour which
loses on cooling, both colour and
odour depends on amount of solid
matter in sol., quantity varies, estima
to 5-2 1/2 fluid oz per day (Parks) extreme 35 and 8 1/2
when above 60 or below 3 {suspicious of bad look out}
Sp gr: 1020 ^{may be from 15 to 25 in healthy} for whole amount passed during day
in disease from 1003 to 1000 in albumin
and diabetes, that in morning is rich
in solid ingredients, called urinae Dangri
as only excretion of blood, after drink
much water it is pale. urine copiosa
after eating is rich in solid matter - Chyle
the reaction when put part at acid in man
and common is Herbi alkali,

could test that. collect it. for 24 hours

Filiform sensory whole of dense
have cuneate processes
covered by honey split, lamellae
Lamiform are 2 culture
only in small group most
at tip and about side

Circumvallae are 5 or 10 in number
at root of tongue in form of V
Each of cuneate flattened
slightly surrounded by a groove
outside of which is an ^{elevated} ridge
uncorrelated behind these

over whole surface simple
papillae between bases of other
over same kind as on skin

Nerves terminate in gustatory
cells or Bulbs. All are radiate
of spiths of cells of oral
Bulbs in cuneate. Papillae only in
lateral wall of grooves

Maximum of acidification in man is at night and in the morning, shortly after standing it becomes alkaline owing to decomposition of some of its constituents

Wednesday Jan 17th

Composition of Urine

D Cyst Mucin	Water	967	Residue 52% in urea + salts	Colours in health & in disease	10.16
	Urea	14.25			
	Uric Acid	4.65	8.5%	Silica	Traces
	Pyrophosphoric acid	10.6	14.1%		

Urine contains free CO_2 . O. N. are higher
very in health, in disease others
occur as albumen, Sugar, Bile colour.

Do. Pus, Spermatozoa, Lactic Acid, Phosphoric Acid, Water is most
variable, in disease more variety. In Hystrina &
in Diabetes insipidus water alone is increased.
In D-mellitis also increased but solids are
increased by sugar. In fever water
is diminished and solids ^{absolutely as well as relatively} increased, it
is high coloured, acid, and high sp. gr.

Urea - nearly one half of solid matter, $\text{C}_2\text{H}_4\text{N}_2\text{O}$,
represents most of Nitrogen excreted from
system, same formula as Amm. Cyanate
and same as Am Co. Muriates H_2O
from first organic body made artificially



Filiform have little or nothing to do with taste
most abundant on center of tongue when taste
is dulled, rest suppl. granular & C.S.
which are when sense of taste strong
Set of fungiform part of organ. As a special
endowment with sense of taste
Taste sense abundant on soft palate &
pillars of fauces

Softest tasted all sub. Must be
sol. in fluids & brought on a punctate
into papillae. Most sup. body
not dissolved & dry tongue does
not cause sensation of taste.
Mechan. & elect. stim. & cite
taste, as stream of cold air gives
rise to taste saline.

Tongue has delicate sense of touch
and is sensitive to cold & heat.

Sugar of 5 is of common sense as we
as of special sense. This sense
is distinct to nerve. may lose

when from long animal & plants

Colours, odours, neutral, taste like
saltpetre, & sol in H_2O and ac-
cumb with acids, great variation

from 219 to 700 fr air dry, nitrogenous
elements. vegetable denitrification, exercise
increases very slightly. It is from 1st waste

of nitrogenous tissues and 2nd direct transfor-
mation of nitrogenous matter into Urea, where or
how urea in blood or liver we do not

know, may regard last stage of direct
oxidation of urea, creatine, creatinin,

Uric Acid, $C_5H_4N_4O_3$, rare uncombined,
united with Na, am, K, Ca, Mg,

forming urates, of Uric of Soda and am
are important and plentiful, in

mammals is small, in birds and
reptiles it exceeds Urea, was formerly

called Lactic acid, usually in urine cannot
be recognized until some other acid is added
to decompose urates, if excreta as in

a deposit frequently occurs forming a deposit
resembling powder. Calcium urate
greyish colour, mostly deposited as
urates, requires more
always recognized by sol on heating.

one power without affecting other,
many with sub. as must be
only most of common seen. one
not sense of taste,
some say sweet and bitter
don't arise from change in
sensation but from dist.
nerve fibres. Glass best
when sub. pressed against
papillae, some sub. appear
bitter. but no firming
tongue on roof of mouth been
noticed.

Taste sense conformed
when empty sensat conveyed
to centre, man sub. though paper
an tasteless when more held.

Some remain for long period,
rapid applic. of sat. sub. soon
blunts acuteness of sense.

2due: under sense acute,

very small 15000 cold and 2000 boiling water
plate occur in various forms when pure in
thin Rhombs, may be in the ^{round or barrel shape} diamond shape
In fact it is much increased, chalk stone
are made of Soda, Separated in ~~Waters~~
is a col water, often decomposed in
bladder, then apt to lodge and give
worst kind of stone, like urea, ^{is product of} ~~decompos~~
of albuminous Lima, closely allied to
urea, exist together, in some animals
one replaces the other.)

Hippuric acid also exists in nitrogenous
acid, now is found in carnivora, $\text{C}_4\text{H}_5\text{NO}_3$
^{600 of cold water}
with water, very col in hot water and all
rare decomposed forms Benzoic acid,
we know not its source,

Colouring Matter is probably derived from
blood is named Uroerythrin ^{Uroerythrin}

In health urine after standing a few
hours clonches of mucous and
Epithelia cells.

Creatine & Creatinin are extractive matter
also products of waste of nitrogenous
may be converted to one another and ^{urea} ~~creatine~~
Creatine is stable and found in muscles

Smell.

endothelium of nasal fossa
MM. is perforated by Schneiderian Membrane
varies in vicinity of orifices is smooth
thin and provided with granular epith
in middle portion is soft and dark red
furnished with columnar ciliated
epith. In roof of upper part, MM.
has yellow color, thick and vascular
columnar and non ciliated epith.

Sphenoidal Bulbs in frontal bone
form 3 loops lies on Cristiform
plate, contains non nucleated
nerve fibres, bulb contains many
cells. These form pleurae
beneath MM. have been traced
to olfactory cells, Epith. two
var of cells columnar and long
very cells between the c. cells, Olfactory cells,

Inorganic Constituents, from substances
taken with food - a small part for
oxidation of sulphur and Phosphorus
Sulphates of Soda and Pot. form
most, made from food as it is in use
in animal diet, in fever and when
sulphur is not taken, so are not salts
never in urine precipitated, test is my
Barium Salts.

Phosphate found in various forms
divided into two classes, alkaline
and earthy Phosphate.

Alkaline form bulk of Phosphate Salts
acid Soda Phosph. is principle, on this
some bilious acid reaction of urine
depends. A man taking 143 grains
of meat with Potatoes and milk
takes about 130 grains of Phosph. per day,
some is formed in animal body -
Supplied by food to be derived by liver
and taken by urine equal to ^{they form an index} ^{to amount of urine free acid,}
Earth Phosphates are of little use and are
not plentiful, ^{20 per cent} in soil in water, excrete
about 20 grs per day

to supply common sensation
to organ,

know very little of nature of odors,
probably minute volatile particles,
as in taste & distinguish between
sweet and astringent, all strong
vapors and pungent vapors
excite combustion of tissue, from
effect on trachea & nerve,
a material must be volatile
and insol in water.

To be odorous air must reach
to upper part, in ordinary
respiration only small amt reaches,
have to sniff to make ~~know~~ sense
in dry stage of cold in head no
sense - dry air unfavorable,
sensation differs in persons,
in some essentially absent
where none of other undeveloped
this is developed much

1. Left to rot in urine is all-alien,
Alkalies & urine causes their precipitation
urine by decomposition causes their
precipitation the urine ^{is at first} and with
May Phos forms (Am. May Phosphate)
triangular frims ^{or} obliquely truncated ends
& deposit is not sign of excess, if urine is acid remains in sol
if urine is acid they are not
deposited if urine is alkali they
are deposited, they are also deposited
by heat, to be guarded against in heat,
testing urine: always small amount from
disintegration of tissues, a decrease
of softness of bone increase them
Chlorides of ^{Sodium} Pot
Mach. almost always present, from food,
not found in times, but acts as passing,
diminished in all fibril diseases and
in all diseases ^{with} exudations,

Sugar in small quantity
always exists,

Oxalate of Lime always present, &
floating in mucus, ^{near bottom} in its form, the
dumb bell and octohedra, like a square
crossed by two diam. lines

Herb. are chiefly affected &
very odorous.

In some animal power of follow
 scent wonderful, one odour
 modifies subsequent odours,

Eye & Sight.

~~Contract~~
Sclerotic & Cornea,

Choroid & Iris,

Retina,
Refractive media are
aqueous Humour -

Crystalline Lens,

Vitreous Humour

Sclerotic: entire of white fibrous
tissue: as optic. nerve penetrates
it separates fibres,

Cornea,

4 layers, 1 Ant. Spith same as
layer on skin.

2 Substantia propria. rest. is perfect clear
white fibrous tissue, if treated with
Aluminate of Gold have numerous stellate
crystallines.

Liver

usual general form after urine has
left bladder, abundant after salt
Alumina or any other substance contains
result from decomposition of urine acids
Oxalic acid, ^{as a result of}
it is formed by system.

Thursday Jan 18th

Liver - many points not known,
in one point differs from all other
glands. Supposed its secretion from
venous blood. In man it is
organ 3 or 4 lbs. upper part of abdomen
in right hypochondriac region,
extends a little to left region, by
its upper surface is close to diaphragm
protected by ribs of right side,
upper surface is rounded fitting
concave diaphragm, under surface
somewhat flattened and formed
into lobes, right lobe forms back of
organ and is under ribs of right side
undersurface is covered with Glisson's
capsule, color, attached to one
of fissures is gall bladder.

By Mt. Silver - there exist in certain definite spaces which contain these cells known as

3. Port. Starry lamina,
fine transparent substance,

4. Port. Spindle layer, lining
ant. chamber of eye.

Choroid is vascular coat of
eye, nature of cornea thin &
pigment or fusells some of which
are cellate. Outer layer cont.
large vessels, inner layer has
smallest vessels.

Iris is musculo mem. curtain
in front of lens. Muscular fibres
are constrictors and dilators.

Con - around margin of pupil
some believe there are no dilator
fibres.

Liver

Its envelope is layer of connective tissue and Peritoneum, not vascular cysts, Hepatic artery, Portal Vein and Hepatic vein

H. A. carries blood to liver for nutrition. P. V. for purpose of secretion of bile, and H. V. carries away blood supplied by both. The duct by which secretion comes off leaves at portal fissure at upper and left lobe. Hepatic duct which unites with cystic duct and forms common bile duct, about 3 in long passes obliquely through mass of duodenum it forms pancreatic duct, open about 3 in or below Pylorus

At transverse fissure all vessels are enclosed in the ^{or capsule} sheath of Glisson, a continuation of sheath of organ, closely adherent to liver substance and permeated to all parts of organ, preventing veins collapsing when cut across, other vessels collapse not being intimately connected.

Retina, thin transparent very delicate, on section,

1. Nerve fibre layer, composed of nerve fibres only, continuation of optic nerve.
2. Layer nerve cells large & multipolar.
3. Internal molecular layer, exact comp., not well known.
4. Internal granular layer, a number of oval & round nerve corpuscles with oval distinct processes.
5. External molecular layer, thin layer same appearance as internal.
6. External granular layer, same as internal granular.
7. External limiting layer
8. Rods & Cones,

Rods most numerous each one consists of stem from which is placed a rod & cones same as terminal & are supposed to be terminal end of optic nerve.

Liver



Proper ~~liver~~ is made up of hepatic
lobules, ^{polyhedral,} diameter $\frac{1}{4}$ to $\frac{1}{2}$ of in, circumference
and intervening space is occupied
by blood vessels, hepatic ducts and nerves.
Each surrounded by the sheath of Glisson.

In man the distinction is not well
marked, and often united ^{by connective tissue septa united}, in pig well
marked and may be separated by maceration.

Course of Vessels, They enter at
finer forming portal canal the
branch in all directions and at last
lose themselves in interlobular spaces
a section shows vein, artery and duct,
vein largest and artery smallest,
Portal Vein, follows sheath, at last
sends branches between lobules, these do not
penetrate substance hence interlobular vein,
~~the case in man~~ they are mixed up
with one another and anastomose
a capillary plexus ^{is formed when} penetrates the
lobule ^{forming the} lobular capillary plexus,
^{from them the blood is}
^{into a larger vein in the center}
collected ~~by a vein which carries~~
~~it out to a larger vessel~~

fibres enter gang. corp. peripapillary
passes up the - int. molecular layer
then enters int. granular layer
where in continuity with corp.
passes the - ext. molec. layer and
enter ext. granular layer and
terminate either in rod or cone,
of Pectenocytes Layer.
Linné & Spitt was once
that to belong to choroid

Thursday 21st

Labiellae spinulosa Bulk of connective
tissue bands main from internal
molec. to ext. molec. layer. are the
supporting tissue of retina.

By Spitt. - first thing seen is optic
disc, is entrance of optic nerve, it is
present in centre & or vessels some
are arteries others are veins,
branch chiefly pass up and down,
veins are darker and larger

Liver

called the intra lobular vein they are
ultimate part of Hepatic veins

Hepatic Artery, its ultimate branches
are placed in structure in its sheath,
and forms capillaries some of which
open in Portal Vein and in Capillaries
also some branches supply capsule,

Hepatic Vein - In lobules ~~circulate~~
to form ~~bits~~ extracted and then
blood flows through intra lobular vein which
then unite with the sublobular vein at
base of lobule, and at last form large ~~vein~~ -

The Portal vein ramifies until it
surrounds the lobules called interlobular
vein from there a capillary plexus ^{which} enters
the lobule from there unite in the center
forming intra-lobular vein which runs
out and enters the sub-lobular vein
just outside of lobule. These again unite
to form the Hepatic vein

A-A supplies nutrient blood to walls of
Portal Vein, sheath of Gallbladder & capsule of organ, its
discharges part of it into Portal vein, but greater
part in interlobular veins.

inverted: in axis of eye is
Macula lutea centralis yellow spot
of summery, ~~rova~~ at this point
all layers are not present
Optic nerve fiber layer is slight,
faint. but more. and its lamella
very slight, external granular
better marked, in outer layer
no rods only cones which are
much longer than in any other
region.

Aqueous Humour,
space between Cornea and out surface
of vitreous lens, clear watery sol,
containing 2% of salts, chiefly NaCl,
it fills anterior chamber, Iris is
really in close apposition to lens so
no posterior chamber.

Vitreous Lens,
doubly convex, in ant part of
vitreous Humour, contained in

Friday, Jan 19th

The Portal vein collects the blood from the abdominal viscera and passes to the ~~liver~~ liver from which the bile is secreted.

Lobules, are elongated masses, each has base - apex and sides. Each base rests on wall of Hepatic vein or sublobular vein, when cut a cross appear polyhedral, when they are set on subv. vein like sessile leaves on a leaf stalk.

The H. cells with capillaries compose liver bulk, the cap. form dense network, ~~the branches of which have?~~

In the interspaces lie the Hepatic cells, spheroidal $\frac{1}{1500}$ to $\frac{1}{1000}$ in diameter often polyhedral from pressure, some are nucleated, often pigment and fat globules.

Bile ducts. Since 1835 this distribn has been disputed, not until 3 years ago were they demonstrated

an elastic but brittle capsule,
maintained in position by suspensory
ligament, ^{which is} connected behind
with ciliary processes.

Capsule and suspensory lig
exercises certain amount of
pressure so lens is always
in state of tension and flatter
than if left to itself.

Lens, is bi convex. greatest is behind
perfectly clear and transparent after
removal from capsule into soft
water dense nucleus, on boiling
lens can be split into 1 & 3 sections
is made of lens fibres, ^{are modified} ~~are modified~~
Epith cells, Cataract is

spirit flms,

Ciliary Muscle - Since being
attached at junction of Cornea & Sclera
fibres pass back and are inserted into
choroid cloth, ^{ciliary process} ~~attach of lens~~ ^{and suspensory}

Liver

the begin as fine network in
interstices of lobules, then capillaries
of extreme delicacy, still a ^{question}
whether ~~pancreas~~ ^{between the cells} or ~~lobules~~ lined
by a membrane, capillaries are always
bounded by ^{the} cells in their course,
never between. v. capillaries,
never form blind extremities
from this mesh, larger vessels
arise & composed of delicate
memb: lined with flat cells 2 -
these unite and form large vessels
which are found in sheath, 2 - Change
from ~~applanous~~ to cylindrical
scattered over length are mucous
glands.

Lymphatics are superficial and
deep. former in capsule, the deep
are in sheath of Glisson, not so deep
as super - most of 5 - pass into Thoracic
Cavity. those of deep into lymphatic
glands at transverse fissure

Vitreous Humour



□ 54 of 100 parts
no distinct vessel.

consists of gel enclosed
from inner surface
and forms
numerous spaces
comprising water
saline material.

Optic Nerve

appears as a tube

Quadrant - or two roots, also
receive fibres from optic chiasm.

Send fibres and Ocular

maxim of fibres in contact with

grey matter of Cerebra & Quad,

Two root unite and form flattened

band white from optic chiasm

called optic tract

Probably the main part of retina
~~right tract supplies~~ outer side of right and inner
of left. Left tract supplies outer side of
left and inner of right

Liver X

Nerves - many enter at fimum
sursum in capsule of Spleen
derived from Phrenico-jamni
Phrenic² & Solar³ Plexus their axons of leading
mcutaris.

Gall Bladder - oval, at under surface
at Gall Fimum, about 7 in long
1 front holds about 13. Wall is
formed of layers of white fibrous
tissue, ^{with some elastic} numerous ~~muscle~~ ~~fibres~~
fibres present under mucous coat
numerous ridges cross it giving
it alveola appearance, at their
bottom are openings of mucus
follicles, from bladder a small
duct proceeds for about $1\frac{1}{2}$ in. Enteric
duct it unite with Hepatic
duct to form common Bile duct.
The liver performs double office,
secretion of bile and formation
of sugar, it ~~assemble~~ ^{contains} ductless
glands and secreting gland

Sight is percepⁿ by mind of condⁿ of
exit of optic nerve

Retina possesses property of
convert vib. of ether into
stim^s of fibres of optic nerve
which fibres have power
of mounting accurately sight
in brain. Only retina
has this power. fibres of
nerve itself cannot appreciate
light, all communication
to brain, excite not ordinary
sensation but sensation of light.

Stim^s may proceed from central
organs themselves.

Function of Retina

1. The spot which is absolutely blind
corresponds to exit of optic nerve,
called Marks Blind Spot,
only fibres of nerve here, no
part of retina.

Liver

One secretion carried away by duct
the other sugar carried off by blood
vessels as ductless glands.

The arrangement of Bile duct peculiar,
bile does not contain any active
organic principle.

Properties of Bile - collected
mostly from duct, ^{slightly} viscid, alkaline
pale yellowish, in bladder it mixes
with mucous and becomes thicker.
it varies in colour in different
animals from in core, brown in
dog, yellow in pig, ^{taste bitter} average of 5
1020. colour in matter great
affinity for animal tissue, well
seen in Leptos, when B - is absorbed
in blood and stains the tissues,
no estimate of amt secreted daily.
in man, estimate of ^{B.} Schmor 55 g per
day 30 or 40. though always
going on. it is sometimes faster
than at other, during fasting slight
after eating flow is abundant

2 Cond. of excitement outlasts
cause producing it, always lasts
about 1/8 of second. any two
within this time are not
distinct but are continuous.

3 When eye has been
fixed for long time and
suddenly closed, image will
remain for a period
called a spectrum, maybe
of same color or different,
because sensibility exhausted
and momentary blinding cause
Spectra remain after colored
substances are always colored
but color is not that of object
but opposite or complementary
color, portion which sees
color is exhausted by that color
but remains sensitive to complementary
color.

O

+

Liver

only during digestion does it flow into
duodenum, at intervals it flows
into Cystic and accumulates in
Bladder,

during interval

orifice of common B-duct is closed
it cannot be overcome by low
pressure at this period, it therefore
flows back to cystic duct and bladder.

The stimulus of food in duod-
enum to excite muscles of duct
this aided by increased force of
flow causes the orifice to open.

Analysis - unsatisfactory, solids 140.8

Prof. Pure and water 859.2, B. Salt 91.8

Fat 9.2, Cholesterol 2.6, Mucous and other
matter 29.8, Salts 7.7.

Bile salts, Bile, are combination
of soda with with organic acids
Glycocholic, and Tauricholic acid,
they may be obtained & satzied, which
when first made is resinous ^{on a few} ~~water~~
~~weeks~~ & satzies short, Taurich-
salts principal in liver

Color Blindness - some cannot distinguish certain colors.

4 - Rods & Cones are true excitable elements of Retina. Light has to traverse all other layers before reaching them. Blind spot has none and is blind. It has lots of fibres. Mac Lutea has few fibres but many cones.

If you look at a black surface and light moved up and down at one side of eye a number of red branching lines result. These are actual vessels, these exist in nerve fibres layer. Structure must be behind them and here are the rods & cones.

5. Summation recovers
points of retina must be
separated by certain definite
distance to be distinct
a range of distance in which
two points appear as one.

Two points can be perceived
only as two points only when
falls in distinct points of retina.

Images formed by
refractive media,
Eye is a camera,

distinction of vision depends on
properties in condensed layer,
Chroma causes perfect vision,

In camera for various distances
lens must be changed. In eye
change made by change in length
anterior surface.

In dark room an object appears

Digestive
Secretors
Gh, excretory

} Function

Liver

Gall Stones - are composed mostly
of cholesterol, very common,
when first seen are brown from bile
colouring.

Tuesday Jan 23.

Excretory and Glycogenic work.

The Bile acts as stimulant to enteric
and vessels of intestine and anti-
septic agent, during foetal life
secretion goes on, a large amount of blood
from placenta passes through liver, it
is said to stand in same relation to
as lungs to man. &

It contains such matter as meconium
this is bile separated in utero prior
to 70 Biliary salts same of fat, matter
and 60 % of mucus and coloring
matter,

In man. Bile secret is pure matter
a constituent of health for as during
life, Bile is richest of ^{all} secretions a
Carbon, much ^{is} excreted in
intestine and used as nutrient product

~~W. H. H. H. H.~~

held it near to our side,
3 things will be seen & is
upright ^{converged} 2 is ^{not straight} upright
3 is ^{not straight} inverted.

If Saljut made to look at
distance at opposite wall, middle
image becomes larger and is seen
further forward.

In rest lens is flattened
when close objects ^{at any distance}
contract clear lens forward
and makes it more convex.
Range of vision varies in person
and in age.

Limit by far point or point
of rest and near
far has no limit,
near point diminishes as age
comes on up to 10 years
can adjust to see at 2 ft from
cornea gradually until 22 years

Liver 4

In focus on Bileas salts at all.

Liebig held that C and H. absorbed acid in heat of body, others say the Bilem salt are decomposed and form various acids.

Sub-belted character is dissipated
of narrow times, is eliminated by
time and changed to the cone,

It is likely to effect peptides, +

Also may guard against entrance to Cien
of impure matter from digestive
organs, most solid ingredients
are taken ~~up~~ by the veins ^{of intestines} and
carried to liver, where they are
thrown off with the bile, thus
acting as a sort of filter.

Glycogenic & melton, of great
importance, Glycogen was decin

by Bernard Paris, in Placenta,
in adult, in liver and voluntary muscles,
in fibres of Lactia much more than in adult

In chemical character allied to dextrin.
^{Thin} Globular - being a Carbo-Hydrate,
 non-volatile, with 1/2 portion
 of lactic acid, converted to sugar by
 ferment.

Can only see at 4 in.
at 40 feet decrease to 8 in
50 - 12 in, 60 - 24,

Presbyopia called is
natural process,

Then is Myopia, Hypermetropia
or astigmatism

Myopia short sightedness
hardly any power to discern
distant objects, due usually
to increased refract power of
media of eye. Cornea
more prominent. Ant post
diameters increased, rays
are brought to focus in front
of retina instead of upon it
remedied by my concave
glass,

Liver

colours, tastes, anisophores
more to be produced by ~~starch~~ ^{Liver}
turned to sugar and carried off by
H-Veins, formation is independent
of the kind of food taken, some day
this change during life, quantity
found in liver is small, as it is carried
away as fast as formed; ^{one says just as much}
^{in H. Vein and Portal Vein}

What is formation of Glycogen, as it is
always more during digestion, and
more abundant after eating saccharine
or starchy diet. That is can be
produced independently ^{of outside sugar} may be known
as it is in carnivora. ^{to be formed without food}
^{until no trace in portal}

Experimentation liver washed well, when
after 24 hours it was ^{again} formed in it.

Its quantity is modified by kind of
food, $17\frac{1}{2}\%$ vegetable $14\frac{1}{2}\%$ animal
~~and sugar food~~, In animal deprived

of food secretion is stopped by accident,
The secretion occurs in liver cells,

We know not the stages or processes.
Some suppose Pepton is decomposed by lactic
Glycogen & urea. Others say sugar is split up
into Glycogen and fat.

Hypermetropia,

Cornea is flatter, ant post diam shorter, lens flatter rays not suffic, refracted and consequently brought to focus behind retina,

Presby. & Hyper are both long sighted and both are cured by convex lens, P. is natural and gradual, H. is effect of imperfect development

Astigmatism

Inequality of refract power in vertical and horizontal diam of eye due to differ in degree of curvature in lens, rays are unequally refracted,

Emmetropia eye a perfect eye.

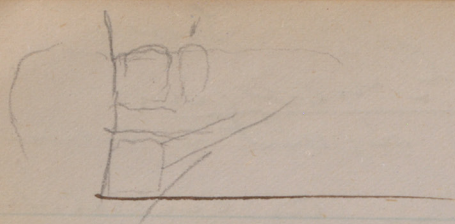
Twice

What becomes of Glycogen.

The blood is either spent & carried
off to sugar, the faster the circulation
the more rapid the change, some
believe it is changed in passing
through lungs, ^{and subserious to heart where oxidized there,} some speak of capillary
intermediate state in formation of fat.

The muscle of adult centurion fly copious
in all new formation it is abundant,
as in tumors growing fast, under
certain conditions new are excess
formed in blood ^{part} ~~and~~ ^{panes of the} ~~and~~ ^{new}, either
from new or in tissue and forms
or that formed is not properly anionic.

In diabetes a large amount is
formed and is called glycosemia,
what it depends on we do not know,
but it is known to be the product of
*function of (2^d) (floor of) ventricle prothymus,
section of circle sympathetic, many days
persistent, chloroform, and nervous worry.
Causing Paralysis of Vaso Motor nerves
and so altering coat of vessels (Howard)



Tuesday Feb 26th.

Just as state of spirit of optic nerve can
right so causes sense of hearing,
ordinary stings is vit of morbid body
in the atmosphere, Pathology cond.
of nerves themselves may cause sound,
stim may arise in central organs
as in case of fevers etc

Middle ear is the essential part
in it and nerve is distributed.

External Ear & function
It collects waves of sound, in
most of wave must be reflected away
only a few reflected into meatus,
Is not essential part, sound also
conducted by walls of meatus. If
ear closed and tip scratched sound
produced will be very loud.

The effect of noise in median nerve
demonstrated by common test tube

Nervous System,

exists in all animals, the higher
they are the more developed they
become, though in all parts un-
mited in the harmonious whole,
regulate performance of organs,
sensation, nutrition and in its
entirety, the medium through
which we receive impressions,
^{regulate movements voluntary and involuntary}
divisions, the Cerebro-Spinal
and Sympathetic, each of
differs in structure, function and
arrangement of ^{elements}, the first, the Brain
Spinal cord with nerves issuing
from it, the brain and nerves
to regulate ^{voluntary muscles} organs of special sense,
^{voluntary} movement etc, and concerned with
mental phenomena, is called N.
S. of animal life,

The S. or ganglionic system
consists of nervous organs

all angles, rubbing upon drum and set it vibrating
and is kept in tension by hammer by spec
and mallet. it is seen that it is concave
externally, tension is constantly
undergoing var. for low sounds
relaxed, for high tension increased,
even tight membrane has its own tone
Membr. tympani, possesses power of
adapting itself to notes of very differ-
ent. come from drums to snare, then to
concertina valve, & ^{neutrum} vestibul
bit of bones near by the kind,
& growth of particles membrane
& then as a whole, an chief
particular part - 5 Lubanget
air in tympanum is also set
vibrating, structure in this cavity
rather deader etc than others or
gcf living membrane,
F. l. u. e. s. t. r. a. R. o. t. u. n. d. has not even
extreme come with but has a 7 valve

connected together by nerves, situated
along either side of Serial ^{Column} Cord

From this ^{distributed} system of organs of thorax
abdomen and Pelvis, most concerned
with process of digestion & R.S. of
Organic Life. Numerous connections
^{impress and antiochic} between two systems, not absolutely distinct.

Wednesday Jan 24th

Anatomy of Nerve Tissue

Two kinds, nerve cells and
N-fibres. This is also called vesicular,
^{nerve} ^{fibrinous} ^{tissue}.
N-Cells are usually in masses
connected with N-fibres. Each corpuscle
is spoken of as a Ganglion cell, number
are termed Ganglia. N.C. give origin
to N-fibres ^{and generate nerve force} and also can receive
and give impressions brought by the
nerves. N-fibres are united into
^{and join nerve centres} bundles, these bring all parts of the
body in connection with nerve
centres, they act as conductors of
nervous impressions, it also enters
into composition of N-centre

and of altitudinal pressure in lungs
that factor to transmission of air
an equal pressure is secured by
instinctive tube in swallowing this
tube is always opening,
if its sides of diaphragm subject
unequal pressure it would not
vibrate

To move close mouth then
and strong ex pns effort made
when inspir effort this air
is withdrawn from trachea
and lungs become concave external
guards of air sudden atrop shocks,
always of exit of secret
In Larynx, change from which
to fluid,

Four walls is checked by tension
in which status fits
in passing from air & water the
suffer descent but of

new matter

also divided into white and grey
white is found in ~~the~~ ^{the} ~~surface~~ ^{surface}
of spinal C and inside of Brain
The ~~grey~~ ^{grey} ~~external~~ ^{external} ~~layer~~ ^{layer} of Brain and at its
base and center of S. Cord. and is
mostly composed of cells & is a center.

Structure of nerves, usually made up
of tubules, united by connective T
and surrounded by a fibrous sheath
called neurilemma, it serves as
protection ^{and as a bed} ~~and~~ for B. Vessel & nerves.

Two kind of tubules, the medullated
and non-medullated, the former is
Cervico Spinal the latter is S. System
In most nerves the two kinds are mixed
in such proportions, ^{the 1st portion is C. S.} ^{the 2nd " " " " " " " " " " " "}

Medullated n. Fibres, if examined
^{in serum} the nerve - are seen as ~~dark~~ ^{clear}
clear tubule with sharp ^{contour}
in this no sign that they are made of
different parts, by repeat an
shown to consist of 12 Membran
Sheath ^{of 3 layers} an intermediate layer
of ^{white} ~~white~~ matter the medulla

dense membrane interrupted
they are increased

Finest Rotund is made
of vib. passing from air of
Tympanum, & h
in all circular vib. from fluid
before striking on nerves.

Vib. runs backward two
ways the Scala vestib. and
Scala Tympani

Scala Tympani the Pericolumella

& Vestib. the other Tenor

7. Utricle of Semi Circular Canal

indeed, many think it this
is resp. of sound from bones of head
thus also enables us to perceive direct
from which sounds come.

3rd - a central fibre the axis cylinder
the Membranous Sheath - is delicate
perfectly transparent, invisible in
fresh. ~~is~~ is all except Optic and
Auditory, ~~not~~ in spinal cord or Brain
^{are embedded in connect tissue}
presence depends firmness,
Medulla - lies immediately within
sheath, also called white substance of
Schwann, made of oils looking substance
^{emitting} of albumen. Central ~~white~~ ^{alt. Malt.} to it the
glistening appearance is due, the white
substance of Brain and cord due to it.
on addition of water, changes ~~occurs~~
^{from without} ~~inwards~~ ^{from within} first separates ^{Med} from sheath,
giving sharp ~~contour~~ ^{adouble contour},
then collects into drops, gives ~~various~~
appearance. It does not ^{exist} at origin
or peripheral distribution. It probably
plays secondary part, ^{not mentioned as conducting part} may be
considered ^{as} ~~isolating~~ ^{and improving force} sheath, ^{within proper limits}.
Axis Cylinder - not seen in fresh
fibre, ~~can~~ seen in prepared or often
in torn fibre, a granular cord
of flattened form, from medulla differs
in its consistence

 8

Huy-lup's Summary.

Memb. Lateral is app. to where
sounds are app. heard or to
intensity and quantity. does not
discrim. quality, vestibular
nerv. tell us if loud or low
by no ~~discrip~~ of melody
Cochlear - discrimin. the
quality rather than quantity or
intensity.

ex. act of our feeling of cochlear
have fine ~~rest~~ & distinct musical
impression every fraction of tone
is probably represented by the
separate nerve fibres

Scala Media - resembles very loud
in front and appears ends of Cote
represent keys, and Gress. strips

Enneuropic Enneuropic
difficult to say what its structure
is, said to consist of a number of fine
fibrils. It is essential element, only one
minutely present, from origin to
ultimate branches, none can be
supposed to pass along its diameter
 $\frac{1}{3}$ of its tube, Cassini tint it red,
medulla remaining white,
Non-Medullated Fibres—

In olfaction, audition, in S. S. and
gray substance of B- and S. Cord, consists
of axis C- with sheath of Schwann
semi translucent, gray, often spoken of
as gelatinous fibres or ^{fibres of Remak} The degree
of colour? depends on ^{of grey & white part of Brain} Medulla ^{being present or absent}
They all do not possess sheath of Schwann.
This division ^{of med. & non med.} is very common but
~~an~~ essential difference, a nerve near
origin with only axis and become
conjoined with either or both of other parts
and again separate from part and
ramify as axis alone.
* Diameter varies, same fibre appears

~~For a long time, I have been thinking of writing a book on the history of the world, but I have been so busy that I have not had time to do so. I have been so busy that I have not had time to do so.~~

During the time, I will be
 there and we are expected at
 8 and 9 week of time was 8 7/8
 9 in chain, and 10 1/2 in
 3 3 - 4 in, C.T. and 10 in
 10 1/2 in, throughout 5 6 in

7.8.9 m. found
 47 m. 2 m. from the
 in cloud, in 5 or 6 weeks after
 seen only traces detected

Make it all
Five - Seven
 all common & frequent - from
 it is a different

Milk - 1 1/2 to 2 in in length. width 3/4 to 1

in each life common with Prickly pear, but scarce.

written because I can't write
even the numbers of the

I am not certain, in what sense
 proper scientific form = scientific method
 or how far it - bearing out this

male

Cosmos lacteus.
after decaying eggs for 2-3 days
seen from 25. after
rejection, fresh living mussels in
the water and with brownish
green or muddy green, or
coffee, almost 2 brown
spots and a few small
in this case of which, seen
is abundant and strong white
strings and a short also, at
even from 1000 or 1000
in 1000 or 1000 and 1000
it was of 3 weeks with short
attention present nearly 1/2 in days
3/4 in days, with this being
4-5 days, with brownish
and at 5 weeks and 1000
the 2 eggs, but 1000
the 1000, at 1000
changes in color and from 10
larger eggs up to 1000

Frank

rate degree of the correlation with
Café, as seen in fact
part from important evidence,
during those years of observation
estimated = 1 day it was
2 - out of 1000 films,
than 2 of the 1000
it can be said from that
what is likely in fact is
included in investigation.

during those the other work
in fact, but the
is at the same time
not yet known, most other
because it occurs at a different
of them. one discharge -
reach for information and
may be part of phenomena,
the day takes in figures & ideas
not known. but how long it may remain
alive

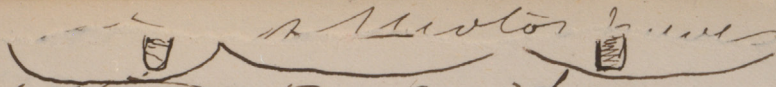
Axon is in S - ganglia in small
numbers, Ant P. are not in mass,
Bo P and Multi P. abundant in all
part of nerve cells, many have 10
to 12 processes. Probably all nerve
fibers terminate in nerve cells <sup>nerve processes are either
with fibres - observed in some</sup>

Functions of nerve. are main
connects Brain and S. Cord with
peripheral organs of sensation motions,
^{characteristic} ~~nerve~~ power exists in nerves and
is called irritability.

A dorsal spine, the brain center
superior and carry from center
to muscles ^{superior muscles} inferior received from
within, thus two sets of fibers are provided
I that which carries sensation but
no motion II that carries motion but not
sensation, they are sensory or
Centripetal or afferent, and Motor or
Centrifugal or efferent, they are only
separated at distribution and origin ^{of functions}
the spinal cords arise by two cords,
the ant is motor the post sensory

1862

the deep - is variable, but in
the deep - is deep in some 6 or 8
feet variations in current
depths, indicated by 1/2 2 3
no current other than ordinary
as in first and last steps
much very much, which
right then right, not separate
of heavy mixed with ^{current} ^{not} ^{plain} will
marked in with to, with this
large number of fish 3 rap
Spent was in deep,
to discharge, comes nearly
from the bottom, near
of which - of which during heavy
a has been found in water
in taking into, however, has
with, change of depth, become
thick, soft and very porous also
often - may be seen 1/4 of inch,
3 feet as that as specimens


~~some contain one kind entirely as found~~
 others are ~~allopathic~~ ^{as in 5 nerves} sensory, ~~no~~
 anatomical difference in fibres
 the difference ~~not~~ ^{with which cells are connected} normal or substantial
 but on structures connected, motor
 only connect with muscles, the sensory
 only connect with sensitive parts.

* another set are sympathetic nerves which
 maintain the state of nutrition and
^{and, ~~renew~~ state of ~~nutrition~~}
 others which hinder action of organs,
 these are inhibitory.

The special senses ^{motor nerves} ~~are~~ ^{renew} ~~special~~ ^{electrical} ~~special~~ ^{inhibitory}
 nerves which cause special sensation
 we do not know if general impressions
 are conveyed in same nerves or
 under special fibres or not or
 at ~~under~~ ^{under} different condition of ^{of same nerve}
 as warmth ^{cold} and feeling, all men
 may conduct impressions ^{from periphery} to centre
 which pass out ^{of an eye} to motor nerve
 this is a reflex movement or
 a auto-motor action, as in secretion
 of saliva when food enters mouth

Neufchâtel

When I could
find no more
dark age take place
in a month
continued with 45

current value of 20 1 inch

are furnished and shown
return for 5 or 6 months after but
of which, until lactation is over
many experience some

Ways etc. them see, and drive
muskat-chin frog; and drive
back at

proceeds thus: - feeling sympathy
and sense of right - and increase
in virtuous man, next comes

1. *Agave americana* L.
 2. *Agave americana* L.
 3. *Agave americana* L.
 4. *Agave americana* L.
 5. *Agave americana* L.
 6. *Agave americana* L.
 7. *Agave americana* L.
 8. *Agave americana* L.
 9. *Agave americana* L.
 10. *Agave americana* L.

at the 13 days checkup is abundant
when water has been poured
and order. Other others.

after lunch 2 or 3 days and
during other changes & events

Stimulus

action of motor nerves
General Properties of Nerves.

Irritability, ^{the power of responding to stimuli,} ~~the conduct of impression~~
~~by propagation of irritability,~~ all other
where create nerves are stimuli
from mechanical, ^{or tactile stimuli} 2 Chemical as
acid. 3 Electrical. ^{when applied to sensory nerves} any ^{or electric density,}
when applied to motor nerve causes
contraction, In latter case not
necessary to be in connection with
nerve center as may be seen when
foot nerve is severed, Motor also
called into action by tactile,
nerves of special senses are excited
by special ^{parts of modulation} ^{means of vibrations} rays, Heat and Cold
also special ^{stimuli} irritants. All ^{stimuli} ~~stimuli~~
^{whereas cause other changes in fibres.}
~~from~~ destroy power of impressions.
^{divided in times when nerves of taste degeneration.}
In dividing motor nerve, it is at
first made greater but is destroyed
in a few days, ^{in divide seems nerve gradually} ^{disappears from central or peripheral.}
be returned for some time after death
departs first in warm blooded
living in cold, last a few days

[illegible]

The cat may understand without
affected other.

Nerve Force - very little is known
about its relation to electricity, but not same
disproven by experiments of ~~some~~
it is unlike any force outside the body.

Law of N. action ~~→~~

1. An impression on a nerve fiber
is more powerful to another, a
new fiber may thus be compared to
insulated wire, each is adapted
to carry special impression, a nerve
of action, ~~or~~ no sensation of pain or any
but light. In motor - sens. depends
on structures connected with in central sphere.

2. a certain definite part of brain
is required for transmission of sensation
^{in motor} ~~the~~ is act of volition, transmission
to termination and excitation of
muscles. In sensation also B.

1. rapid of impression of sensation in brain

2. transmission ^{the fibers} and its perception in brain
as a continuous sensation

Ratio 80 ft per sec in frog

In man motor 85 ft per sec, 150 ft per sec

Journal of
a summer and autumn 1847
at
Newbury, New York

I am happy to see you & the
to Boston party. (see. below)
a pleasant surprise of Sept 2nd the
July 2nd at 4 day. and 1/2 the
also in distinction of Sept 2nd
and music. there refused
promised me the same

in several places and
5 pm was with me at
the same place, at same time
from time to time between
the also from the same place
we were the first to see

Sept 5 date of birth of the son
in Newbury, at the same
from when from the same
Newbury - is the 2nd of the same
same month from

3. When stroke of Lumen R. i.
touches in it causes a sensation
in Cerebrum as if pinprick and was
pricked or irritated.

* This law known as ^{impressions} ~~transference~~
mann ^{impressions} of feeling of manipulative
limbs.

* When impression is made on back of
motor nerve ^{it is propagates in centrifugal direction} causes all its
muscles to contract. *

Friday Jan 26th

Function of N. Cerebrum.

Every part acts as center for
reception of impressions ^{and sends out motor action} each
is independent to a certain degree.
^{and performs ranging actions in proportion to number of fibres, myelinated or not}
a decapitated frog remains quiet ^{if it}
if stimulated, but if touched
reflex ~~movements~~ action takes place,
the fibres simply conduct, a nerve
center not only conducts out
also transfers, radiates, & reflects them.

Conduction of the force in any
part of intention except impression

Brown & tubular in all 3

Arctos Prolegans
in Brown - 1' Spoke of Brown

2 fine Relucida

3 Relictus n. f. l. t.

4 Relictus n. f. l. t.

5 Relictus n. f. l. t.

Arctos Prolegans 25-30 m. l. t.

fine Relucida & Relictus

at first some no even

then some thick cells, then

some even more known as

Relictus n. f. l. t. what occurs? Relictus

in presence of Spoke covers some,

by high power see micrographs,

Arctos Prolegans

Relictus - comparison of fine

Arctos Prolegans Relictus n. f. l. t.

micrographs

must put primary present also

Germania n. f. l. t. is large clear

Relictus n. f. l. t. n. f. l. t. n. f. l. t.

with ex. cuticular n. f. l. t. in n. f. l. t.

which is conveyed to center and a reflex
action is their movement. If irritative
substance is added to food, the main
irritation, causes increased action
and may be conducted to brain &
cutting and 2. cord ^{and must receive its pain,} food makes
5 pain in knee in disease of Hip joint
also pain in shoulder when lung is
diseased.



terram. brain.

Radiation = ^{diffusing irritative at center point}
an diffused over center point,
as in toothache over teeth of face.

Reflected - The Brain and cord is
disseminated of reflex. but any ganglion
may act same. These things are
necessary, a sensory nerve a
center and a motor nerve.
they are involuntary, in cases of
Trauma of stump when cord is compressed
all lower parts are paralyzed
but by touching cord to a reflex
action takes place and muscles
move, without sensation





The Central organs -

An Spinal Cord, Medulla Spinalis and Brain
Spinal Cord - cylindrical cord for
fourteen to fifteen vertebrae, then
continued as delicate Spinal Cord. It lies
loosely. Has 3 memb. identical with those of
Brain, these are Dura Mater, Arachnoid
and Pia Mater.

Dura Mater is tough fibrous memb-
separated from wall ^{by slight interval}. Arachnoid a
delicate serous sac - consists of
outer or parietal and inner or visceral,
~~then~~ beneath visceral layer a space
Sub arachnoid space also a cavity of liquor
between the two layers. Serous film
is found in sub a - space. Pia
Mater, is fitous vascular. the vessels
ramify before being distributed
to cord. close to cord and
send prolongations into the cord.

Little cartilaginous or bony plates often
exist in the arachnoid,

In cord. grey and white matter
may be seen in section, grey interior
white external two fissures ant and
post extend in it, the divide it in
to halves. mutia is cune the ant.
is most distinct, shallower but broader
the portion of cord at bottom is made up
of white sub-^{called ant white commissure.} the post: is deeper
but not so distinct at bottom grey matter,
^{called post grey commissure.} each half is divided into 3 columns
by ant. and post. lateral grooves of the
spinal cord. the ant between ant
fissure and ant root of nerve, the lateral column between
point of emergence of ant. and post: roots
of nerve, the post between post fissure
and post nerve.

The cord has two enlargements when
nerves of upper and lower extremities
pass off. the lower part never
pass off in considerable numbers &
are present at a great distance before
they penetrate vertebral canal, afford
a brush called Corda Spinalis
Many of them are ~~small~~ ^{small}

Embryology.

Calcified cells from calcareous
crust & limestone,
seen at upper end of ear of limestone
refine at where is very small, hard
that 1/5 of lime is known

Other end is a restricted & two
it often not continuous.

one of limestone is attached & may
calcareous limestone on it a green
along which with surface & hard,
2-5. is made of crust thin &

the limestone like lime & calcareous
split, crust from crust & limestone
limestone - limestone & limestone
last part. crust of limestone & limestone

15 2 1/2 - 3 on section limestone is
limestone & crust is limestone crust
& crust of crust.

Tuesday Jan 30th

on Dorsal Cord transverse section grey matter
is in center looks like a large H or extends
butterfly wing or two crescent placed back to back
in center of commissure is narrow canal
called central canal of spinal cord.
is lined by cylindrical epithelium, best
seen in

proportion of white and
grey differs in different parts, white
increases apically, The white sub
is made up of nerve fibers ^{connect tissue sheath, dorsal}
~~fibers~~ made up of axon and myelium but no
sheath. ^{Spinal nerves} 31 pair of nerve pairs from end
each to two root ends and part, the
ant. ^{is the largest, both} root is for motor perforate
dura mater. In intervertebral
foramen a ganglion is formed on each posterior
root beyond ganglion the two root
unite, has been shown that the
ant. root is motor the post root
only sensory supposed that some fibers
are to ganglion

White sub. is formed of Connect Tissue
and nerve fibres, surrounded by Perineurium.
Connect Tissue is called Neuroglia
forms a delicate plexus around nerve
fibres, fibres contain axon cy (Cyl)
and medullary sheath, no sheath,
Formos part fibres have vertebra
course. horizontal fibres occur in
ant white commissure also in median
part of lateral columns and in
post root.

Oblique fibres in ant column when
ant roots pass in
Grey sub. made of nerve cells
and fibres with small amt of
connective tissue; form a later but
with mag has ant and post cornua, &

In mot ant all one long thin unbranched
process. called axon cylinder process
supposed to be continuous with how
fibres of axon cylinder of ant root

Minute anatomy, the whole system
is surrounded by fine material which dips
into processes, from under surface. These
fine particles in all directions form
strong lines for bareness of mem-
brane. Some time forms intricate thongs like
new fine run many branched expands
occur. The new fine enter and
and increase, the fine form in
vertical direction, smaller ~~or~~ horizontal
also occur.

The fine network of fine and
cells each half is made up of ant
and post cones. post is narrow and
approaches near surface,
X In ant cone cells are large. In post
part are small and less in number
In post cone is glottal portion, most
new cells are multipolar with nuclei
from these cells numerous processes
proceed most of which divide into
fine branches. multipolar are fine at first
Called Protomane Processes.

Nerve fibres in grey matter very small. consist of fibres which pass perpendicularly from ant. and post. roots, of fibres which cross from one side to other in grey cornu.

of fibres running in grey matter consist of white matter known, Cornu of fibres with Cord —

Ant. root present white sub. and reaches grey matter of ant. cornu, many are probably in connection with sensory process of nerve cells in ant. cornu, other fibres ^{pass} in two directions. 1. into white cornu. 2. others outwards going to lateral column and ascending in it.

Post. roots, which are smaller, fibres pass horizontal across grey matter of Post. cornu, here they break into fine bundles of nerve fibres.

and increase afterwards, the ~~two~~ device and
subdevice and ultimately an connection
with fibre. See processes, protoplasmic
and ^{axis cylinder processes} nerve processes, the ~~first~~ device and
subdevice, the second do not.

Connections of nerve fibres with the Cnd,
knowledge very incomplete, the axis
passing obliquely and some at
gray matter of vent cornu, other fibres
pass from vent cornu in two directions
one through cornu to ant cornu of
opposite side other forward to lateral
column of side

The Post root are smaller and usually
have ganglia course not made out
they enter horizontally, some to gray mat-
ter other up and down post column
before entering. They break up in
fine subunits in fine places
which anastomose with protoplasmic
processes of post cornu, from the
the same fibre axis and from

"Some suppose these fibres
are in contact with protoplasmic
processes of nerve cells."
from this place, some pass post Com.
some out to post white column.

Lansman. If canal of nerve and
ant root cut convulsive move-
ments with no sensation of Pain,
If ant root is cut across, paralysis
of muscles takes place, power
of sensibility is unimpaired.
If post root is cut pain is produced,
no movement. So Post root when cut
of pain pass from periphery to Brain.
Function of Cord.

As conductors, may be regarded as large
nerve trunk, that it imparts or sends nerves
an nerves to brain, along it impulses
of will pass to motor nerves,
if divided all parts below are cut
off from brain and sensation is lost.

nerve and motion pass ~~up~~ to brain
transmission.

In Bell's method an anesthetic is
used. If spine is open and cut
root is tickled, an involuntary movement
of muscles without pain, if just
root is cut paralysis of its muscles
takes place, sensitivity is unimpaired,
that it is not due to loss of power is
shown when we touch the ^{int.} cut end where
contraction occurs, no doubt that
all motor impulses pass from brain to
nerve through ant. root.

When post root is irritated pain but no
movement results, deviation causes
paralysis of pain to all these parts
this is due to reflex ^{irritation} application to cut
end of root ^{nerve to cord} causes sensation of pain.

Function of Spinal Cord.

As conductor and as a nerve center

transmitted,

Anter of parts later & motor and sens.
different to make out, have first to
consider what part are excitable
and what parts are channels for
conduction of sensation. Sensat.
in ant of post col cause signs of
sensibility, may be due to
fibres of post root. Anter part
of ant column no sign of
Sensat. but excites muscular
movements in part below,
Lat col in ant part are also
excitable & muscle. In post
part are sensitive causing sensation
of pain, as far as can be ascertained
they are insens and inexcitable.

Path of the 2 impressions
Sensory paths, after division of post
column. Sensibility is unaffected
division of all parts but post column

Wednesday Jan 31st

The white portion of spinal cord is more homogeneous with basement membrane of connective tissue. Grey substance of nerve fibre and cells with small quantities of connective tissue.

In nerve cells are protoplasmic and axo cylinder or nerve process
Function of Cord.

No conduction may be looked upon as large nerve trunk from nerve to Brain. If divided all parts beneath are severed from brain - is paralyzed, the parts later by motor and sensory nerve difficult to understand, irritation of posterior columns produce ^{sensibility of pain} pain, irritation of ant. col: excites muscular movements lateral columns are afferent. Grey substance is probably irritable and unexcitable.

Path of Sensory and Motor impulses -
Sensory & all agree that of the nerve

is followed by loss of see in all parts below. so post col. does not serve for convergent sensation. If ant and lat. col. divided sensation is preserved, thus proving that central grey matter is path to brain of sensation.

Motor Channel, after division of post col. vol movement retained. If ant-lat. divided vol movement is lost completely, is forced necessary to divide ant grey matter also to cause complete loss of motor

function of Post Col. not known. Some believe different leas. have different paths; some think some of ~~both~~ along post col, and only one of pair in other col may have function in connection with Co-ordination of muscular movement. See in two or three places. chief effect is Locomotor Altered

Is probable then have long fibre connects different parts of cord

of post column sensate is unimpeded
on all have device all but post column
sensate is lost below.

If ant and lat column are deviated
leaving post and grey matter, sensation
is preserved - the proven grey matter
is path of sensation travels to Brain

Motor - after division of post column
power of movement is retained, If ant
and lat are deviated power of voluntary
motion is lost below, thus Anterior ^{antero-lat} lat
Columns of white substance is path of
Motor impulse. In case as seen
ant more power in deviated lateral
columns most power in transmission.

The post column's use is not known
some believe different sensation have
different paths, sense of touch, sense of heat cold etc
it may have function of coordination
of muscular movement. If it is cut
great difficulty in walking. In
Locomotor ataxia, chief symptom is difficulty
in locomotion, after death, there is seen
degeneration of post column & posterior roots,

Cross section.

See impure. Int. tr. affect
nerves of one side are conducted along
opposite to brain. and volun-
tary impulses on one side are transmitted
in cord to opposite muscles.

Decussation of motor.

Throughout whole length of cord. When of motor
impulse is on same side, rest of an
half of cord - below need causes
paralysis ^{of motor} on same side. Decussation
motor tract is not in cord but in lower
part of medulla, at this point fibres
may be seen passing over, injury to brain
above this point causes paralysis to opposite side.
When divided at med. long, complete paralysis
ensues.

7 errors

last expansion plan noted in later parts only, ant: as connectives between motor nerve and anterior expansion of cord."

Cross action of spinal cord.

A sensory impulse passes from one side of body crosses in cord to opposite brain and motor impulse from one half of brain crosses in cord and operates on muscles on opposite ^{side} of body.

Decussation of motor tracts,

Lesion of medulla on one side of cord below medulla cause paralysis on ^{same} side, at base of medulla cords may be seen crossing one another decussation in motor parts does not occur in spinal cord, injury to brain above causes paralysis on opposite side.

Decussation of sensory tract,

on reaching spinal cord undergoes change of side, on entering cord it passes over and enters grey matter of opposite side

Thursday Feb 28th

Fine fibr in bundles, also exist
about hollow cavities and hollow organs
endowed by property of contractility
by which it contracts ~~from~~
under an exert by stim of will
these are called voluntary muscles
a second class cannot be acted
upon by influence of will
these are called involuntary system
in these two groups differ in
structure so much so that describe
two forms smooth or striated
& striped or striated
Non striated exist chiefly in
vascular system, and farther in
system, made of spindle
shaped somewhat flattened cells
known as muscle cells and contain
a rod shaped nucleus and often
branched at extreme,

11

at 1/2 of cord it is common to find
 sensation on opposite side and of motion on
 same side, lower cord at lumbar vertebrae
 on right side low power and sensation
 on that side on left side loose sensation
 and retain muscular power.

Sensation is exaggerated on the one side,
 Paralysis from lesion of Spinal Cord,
 two forms. Paraplegia and Hemiplegia

In P paralysis affects lower
 extremities and is due to lesion of
 some part of ^{cord or compression in some part} ~~the~~ as high as pons
 sacralis, If a bone middle for vertebral
 death occurs from stoppage of respiration as
 Phrenic nerve is affected, ^{of motion & sensation}

In H - this is lesion on one side
 only in the cases injury exists in
 Cranial Cavity on opposite side to
 paralysis. Common cause is an aneurysm
 the origin is below middle of occiput
 affects paralysis of muscles on same side
 and a paralysis of ^{sensation} opposite side.

~~Reptile Action~~

some are irregular and flattened
In some characters are almost
as broad as long

vary in length $\frac{1}{500}$ of inch,
substance is smooth granular,
if a faint long. striation may be
seen.

These are most arranged in
venter & parietal form. walls
of hollow organs. cells are
cylindrical & connect tissue sub,
explained that cells are intertwined
together, general direction is parallel
in some places ^{an irregular} ~~order~~ of fibres and others is
all direct, as in walls of bladder ~~###~~

all of body except heart over which
will has no control is made of this
various wall of digest apparatus
responsible to this, also intestines are
shown as muscularis mucosa,

In uterus, many fibres direct

* Conservation action as when hand touches hot surface or when fully drunk acts without full knowledge.

S: Cordas Nervæ Centu

Limb at neck stump it deprive
 action from Brain does not affect it as
 Clute, a decapitated frog remain in
 natural position. if one toe is violated
 the leg is at once pulled away, on stopper cane
 leg returns to position, ^{then is really act-} in frogs this remains
 for a whole day in warm blooded animals
 it will depart very rapidly, In decapitated
 man it remains for some time,
 caused by independent action of per
 motor of cord, Is well seen in

Imprisoned to cord, paraplegia occurs,
cannot move leg & foot & will,
no pulsus & mitral, but if toes are

Shibboleth writing seen.

S.C. is center of coordination acts, acquired by education, as walking, writing, when first performed are voluntary. afterwards will only controls, the acts are called secondary or acquired reflex actions like fellow which S.C. has secondary functions compared to sleeping man & deep frog.

* Most parts of ant cor - from the
Pons to hemispheres a few seem
to go to Cerebellum

of various glands. Nucleus Basalis
some pts are met with

Muscles entire of this var,
isolated var; occur also in the
skin, striped or voluntary
consist of structures recent
muscle enclosing contractile
substance called sarcolumma

the fibres are arranged in groups
these groups are made up of fine
flattened fibres rounded ends,
by mutual pressure,

Sarcolumma is not visible when
fresh, but shown by tearing fibres
in water and exposure to heat by needles
of nature of cut in sarcolumma
are various the most

Litaneum - an incision about 1/2 inch & usually some external wound.

Automatic Actions

control sphincter of body & the part of innervation nerve from plexus notably from Sympathetic, ^{but also from cerebro spinal} as rest of intestines.

It is always contracted, if it's here is covered, defecation will take place involuntary, in health action is initiated by will. Reflex irritability often much increased by disease and follows Spasms & apperates so much that a single touch may cause convulsions, Common of children teething with diarrhoea an caused by some local effects of nerves.

Medulla oblongata —



Medulla in general appears to spinal cord. Enlarging as it ascends. It has post and ant. fimbriae, in each half, columns are distinct. 1° Ant. pyramids or Cerebra pyramids ^{continuous} apices * with ant. col of cord. * Lateral column only seen below. Above storing bodies denoting them. These horns are anterior

Bornas, - over fibre is
marked by number of transverse
lines or striae running
parallel across the fibre.

Other fine striae may be seen
running in long. direction, each
muscle fibre can be split in
two direct. first long. into
fibrils called formative fibrils.

Each fibre can be divided
transversely. Each small space are
called Sarcoms elements, if
single fibril exam. is found to
be composed of a number of gran.
particles between which a clear
substance. This gives striated appearance.

~~the~~ Each clear portion may see
a dark line cross transversely.
we do not know what causes
diff. of dark and light part,
the former is double latter is not exactly
infusible

in section have white part and central grey matter called
C - Dentate, 

white portion with grey matter inside
Gylenus are Restiform bodies continuous
with four columns, ^{cord} between ^{rest bodies} post. col.
and ^{post} spinous are two slender col. of white
matter on each side of ^{transverse, parallel} ~~spinous~~, there
with ^{post. columns} ^{lateral boundaries} diverge and pass to
form the space called 4th ventricle, below
midulla, ~~xxx~~ from ^{front} in front, ~~xxx~~
Cerebellum behind, the post part of midulla
forms floor. the top, ^{inferior} of Cerebellum and
value of ~~xxx~~ ^{inferior} ~~xxx~~ Ventricle

Grey matter abundant, at lower part
white in the ^{hornes} ~~concrete~~, higher up the
matter spreads out, ^{become more posteriorly,} (the post hornes later
not between them it is also situated
more posteriorly) and ^{at last forms large one} ~~extends~~ floor
of 4th vent. where it is of great
importance from it all cranial
nerves except 1st form originate,
there is also separate grey bodies of ^{midline} ~~midline~~
as in olivary bodies and in lateral tract
~~cord~~ ~~and pyraminals~~

Nuclei in muscle c.f.
not within sarcolemma below
it and muscle substance,

In striae of heart nuclei
exist in substance of muscle

These fibres are united to form bundles and
do not form vessels

arteries are arranged in oblong
vessels, do not penetrate sarcolemma
only a few nerve fibres have been
traced in contact with muscle
substance below sarcolemma
from the motor end plates
between sarcolemma & muscle substance

Spontaneous contraction
distinct from elasticity, is vital
in char. Takes place in direct
of fibres not promiscuous
was thought to be dependant on nervous
stimuli, of various kinds cause

When applied to muscle sub-stance.
poison as curare destroys irritability of
motor nerves but contractility of
muscles still remains

Stimuli are numerous, mechanical,
chemical, electrical, etc.,
in both cases through action
by contact of irritant, by overstimulation
of nerves this may come from
of cont. stimulus. In any case
stimulus induces state of contractility
Contract known as Tetanus

In Paralysis, muscle retains
power of contractility, sooner or
later is lost from disorganized
nutrition

A supply of food is necessary
by action of the arterial system
injury or destruction of arteries of muscles
phenomenon known as cont. fibrillation
can be studied in water beetle

In approaching, when an auge to move
only med. is becoming apparent.

Cause of Expiration so long as it
remains intact life may continue, the brain
and L Cord may be removed yet life
will be obtained, it is only necessary to have
very small spine in floor of L vent,
corresponding to origin of Pneumogastric nerve,
produce death since this is called
vital nerve, ^{on either side of spine on floor in front of divergence of post. pillars,} all rest of medulla
may be destroyed, series of few
lines in length a few lines in front of
divergence of post pillars on each side of
median line, the movements go on
without any fatigue, ^{involuntary} in resp. the cause of
movement is conducted by pneumogastric nerves
this is reflected to Phrenic and intercostal;
as we learnt when speaking of blood.
The unoxegenat blood in lungs causes
cough and extraordinary expiratory action.

The intercostal and diaphragm
are parts cause movement,
when lower parts are paralyzed these
breaths in diaphragm, if Phrenic divided death occurs
at once,

Cont. begins sides crinkling at with end
or torn spot near surface. when it
begins looks a little darker and
spreads over fibre. Only exam.

Cont. is caused by approximation of transverse
striae. 4 or 5 times as narrow

in general shortening of constituent of fibre
at same time increases in width

fibre hard full of contracta fluid is not
dependent on condensation of substance but
transverse tension of point of attachment.

A certain period of time between
stim & contraction beginning. $1/50$ sec.
velocity of wave 40 m per second
in muscle of animal removed from
body shortens about $1/5$

slight amt of heat during cont. not
known if from chem act or friction
Slight sound is produced

When volunt an excited
Contract is quick and instant
relax is also sudden,

In unexcited excit, rarely
follows invol a second
slow & rapid and contract is
slow and gradual, last for
some time and dim slowly
of all volunt, in contract
finest slowest of all ac-
tion of the arteries,

peculiar of contract is it is conveyed
from one part to another well seen
in intest called Peristalt movement,

Sensory fibers ^{muscles} also in muscles
it is by then we are able to appreciate
weight and estimate force required
to move or lift an object.

Through the sensat of exhaustion
fatigue & cramp are conveyed

Cont: of Innervation of Heart



The system a clear was shown to be independent of brain, the action may however be much modified by medullary nerves, horses, one increases the ~~increasing~~ retarding, the motor or accelerator from medulla oblongata and out at lower cervical. ~~from the heart join~~ with lower cervical and upper dorsal sympathetic nerves and reach heart.

The nerves proceed from mid to heart in thoracic nerves, Stimulus of cut end near heart causes cessation of heart's action.

* powerful stimulus of sensory nerve of heart may stop its action by reflex action, said also that sudden blow on intestine causes same effect have sudden blow ^{or shock} and draught of cold water may sudden death.

The accelerator nerve also capable of same reflex action,

Loss of spirit does not follow at
once on extensive death, but
lasts for time in mind,
last for hours & days in mind
of invertebrate in warm or
diap in few hours,
in young animals diap rapidly
lasts longer in some muscles
than others,

from rivers on diap in di-
verse diap. 1. left vent.
2 intestines, 3 stomach, 4 add
right vent. in all these spirit
diap in 1st hour.

there is volent mind of trunk
lower upper limbs and last
of all in auricles of heart.
was known to Galen he called it
retine humor. in one case
lasted 16 hours after death

Cut: of Vaso motor nerve.

which relate to tone of coats of vessels,
Cut: of Hearing, Taste, Mastication,
Cilio spinal which regulate movement of iris,
And Cut of secretion of saliva, all in
Medulla, a peculiar cut: which
when pinched causes increase secretion of
sugars in urine.

Pons Varolii Jan 6th Tuesday
or Lobus Cerebelli and Microcephalon
Broad mass of matter beyond the
a band of white between segments of
the brain, Cerebrum above, Cerebellum
behind and medulla below. It is made
of gray and white matter. The white fits
the brain - are in a mass of surface
both transverse and long. The long fibres are
continuous with fibres of medulla, ^{and} the gray
matter is anterior. The bundles of white
fibres passing through the pons through the Pons
into the Cerebra. Of its functions we
know but little, it is muscular and
muscular ^{in its} deeper part are excitable and

It is said are ~~deposition~~ 1
There are 5 lobes. 2 ~~ventral~~ Pari: Occip. Lungsphen
and Caudal lobes & ~~deposition~~

many macrotia, denuded
or detritus, this irrit, Co, & &
several persons cure detritus
into power. & into Pot.
Upon pain at the muscles
themselves and detritus the
irrit, after severe inquiry
as after full and complete
of muscular irrit, it is
sometimes more severe death
of individuals in Cholera & yellow
fever, irrit and contract of
their own accord,
Case of Mrs. M. in yellow fever,

account for movement of corpse
in coffins,

continued further on,

For here are paths of motor column
followed by movement in muscle of body
the ~~per~~ ^{deeper} ~~parts~~ are sensitive, after removal
of all but by cut across the tube can
can stand and perform movements
with them alone, animal continues to
fulfill, after a certain amount of evidence
goes to show that tuber provides the
emotional + character which are
little governed by will. The whole column
which leave the tuber passes into
to cords which pass out under a pane
over by 3" nerve, as it are two ganglia
called *Cerebra Quadrigena*
The sensory and motor fibres are
distinct in the cerebra, the sensory
motor sup: are sensory, between
them lies a grey matter called
Locus niger, the fibres from the two
ganglia at base of *Brain* the
post pair are called *operc. thalimi*
they carry sensory fibres, the ant pair
are called *Cerebra striata* and they
carry inf: or motor fibres of the cerebra

7-in-front con - runs parallel to mud fissure

Second - - - - - 4 point

Must

[illegible]

when fetus leaves Pms. dies out the
Omma or peduncles of brain

The fibre of ant pyramides has in under part of crus.
Many fibres from ant pyramid and frg wall
pass up in superior part or tegumentum.

Locust Nigra - all sensory fibres pass
into Cerebr. Thalam. the cutaneous fibres
all pass into Cerebr. Thalam. they are more
of grey nerve cells interspersed in tract of
fibres.

Carp. Strait has for center the Condyle nucleus and Lenticular Body connected by internal Capsule.

as the filus pass up the cone in contact with
new cells of corpus. some stick on a then
while others pass out of cell and up, but some
filus probably pass up int. cerebrum without
connecting with any cells

destruction of Corp Stria on one side does not cause
paralysis of other side but if ant. fibres of
internal capsule are destroyed then paral
on other side does occur. same is of thal.
of ~~front~~ fibres of ~~front~~ internal capsule.

beside the longi finis each hemisphere is divided into four
by the finis of Sylvius, & of Rolando, Parieto-occipital
finis, each here is divided five times,
the Frontal lobe between F of Silviana & Rolando forward
2 - parietal between F of Rolando and Post
occipital finis 3. Semipero-spheroidea immediata below F of Silviana
4. Occipital lobe. from to Par-occipital finis
5. Central lobe where F of Sylv is repeated not seen superior
is also called Island of Reil

Fimbriae, Wednesday Jan 7th

Structure of Hemisphere. The finis
longi finis radiates each way, matter
on outside of brain. Some say finis
but is lamella, from these other
finis radiate to Cortex,

another set passes out from Corpus
Callosum to Cortex another set of
finis transvers these are extremely
small, a 3rd set below per matter of
Cortex and inner is with grey
matter of convolutions. The finis
must cross every where the
convoluted and dip into the cereb

In what sub all fiber

1. Then part up to crura callosa diverging
2. Transverse from corpus callosum into lateral hemispheres
3. Arciform part between convolutions themselves connects convolution near and far,

They are all exceedingly small.

Grey substance varies from $1/12$ to $1/8$ in deep some anatomists have divided into 6 layers.

Composed of granular matrix with numerous nerve cells embedded, in addition numerous fine fibres passing in all directions.

Supposed that all fibres passing up in cerebrum terminate in cells of grey matter.

White matter of cerebrum
Matter in nucleus (substantia) of cereb.
white matter which becomes nervous matter
in the white matter of the brain
the white matter is not so much as the grey
matter but it is more extensive and it is
the white matter of the brain which is
the white matter of the brain

The nerve fibres are made up of multipolar cells. However that all fibres are in connection with nerve cells

1 The Cerebral Cortex an organ by which we perceive those clear ideas which we retain and by which we judge 2 = By which we perform the act of the will. 3 = Means of retaining sensible things

4 = Medium of higher emotions of feeling and faculties of Imagination Memory & so on

1 We know consciousness disappears if blood ^{is not sent} is not sent to Brain, fainting is want of blood in Brain, & any injury or pressure is loss of consciousness and intelligence, 3 defects in development and atrophy of brain is accompanied by loss of mental power, and if we begin: ^{in the} series of animal and man and examine development we find direct relationship to kind of intelligence and size of functions

True

necessary in life, movement about before
both of summer, growth is soft & weak
which separates layers, and at last becomes
the body, in this way clearing him
the main purpose of early movement of summer
which has in the three years and 1/2 months
and they all **from the chorion**
to **hormone** - about after this

in which nature is most with power and of part
from nature of vit. movement, don't exclude movement, of part
we in studying out from these movements, by this all
has in which and power of - principle with summer
in life and human movement, copy: about part of the

in human movement of muscle power and is covered,
which comes after nature, has movement, covered and soft
movement, but in to 10th week - are **pathological**
of pregnancy, about end of 3rd week, summer

movement, with which in summer part, movement becomes bad,
from nature at first more clear - from position
of part movement, which is 2/3 summer bad,
which do not change, movement in summer stage, at 3rd week
is covered by thick spring mass, summer - strong with
the strong with, come in summer of movement
and from part of movement.

So as we ascend the series, since
of development and amount of mental
power increases, The Genii may be
removed without danger to life, section
is not accompanied by sensation of pain,
a kid with it removed remain still
as if in stupor, for a few days must
be fed but in a few days tries to feed
itself, it tries to receive external
impressions but not of any use,
a sudden noise will cause it to start
but no sense of danger, only the
nervous for most mental acts,
Cases on record of men with one
half useless.

Almost all experience tends to prove
that sense is in grey matter, In
Idiot's scarcely half mind capacity,

In man development is in direct
ratio to degree of intellect: It is in
grey matter that mind has its seat
not size but depth ^{or number} of connection
is criterion of knowledge. Sense ^{less}

if pieces nearly of character
arrive - the fine material from
which cluses, a secondary fold
of intricate layers makes its
appearance, from one side of rock
both occur much in depression
arrangement with several ridges,
then join in series all about hill
called Ammonite fold, continuing
at last meet over back of bridge
and fine together, and bridge
becomes characteristic of hill face,
at layers become polished out
with little with relative height
when join process. See is very fine
intriguing, enlarges greatly and
anticipates clear floor of same
See is better than top & back
Alcator, the all begin to desert
from monoplant, first appears
an oval part - a bubble part - and
at first cellular, often becomes more
irregularly irregular. Or some from center

not only quantity but quality. A

That is, even if function are in
is as certain as that muscles are by
species, also to special center of motor
in brain. Certain portions when
stimulated were excited, and certain
muscles were moved. ^{Results} 1² one portion of
Cerebrum in dog is motor another is not

2² The motor portion lies more posterior,
on posterior lobe, non motor portion, ^{coordinated}
3. Elec. stim. of motor portion, ^{coordinated} contractions
on opposite side of body.

4. With weak current, contractions
are limited to ^{groups of muscles} ~~groups of muscles~~

5. Portion within these centers are
irritable, dog kept subject
under manual and app. current
to fall directly. Only shock was
that minimum was due to current
conducted to lower part of tract,

Conclusion that certain spots in
Ant. ^{Cerebral} of brain preside over skeletal
muscles. These have not absolute
power,

From

A bird's fish must-serve has
an important office from it
movement is down. In
movement from from attack
5 inches fast and down
mount from it, and in
these were rising from cut,
and drink at end of 3 hrs
in hour.

Measures

In the the the the
is in order & in order
and the are easy discharge
from body of the water
in the water, as released
at present as yet is limited
a previous piece for supply
from water.

Ammonia & all other

First count. The space described
from the plant.
All is in water since described for
ammonia plant chiefly

The only remnant of the language of Brui is that of ~~the~~ ^{artificial} language.

State of Aphasia in which patient is deprived of power of language either spoken or written, two varieties - one in which patient cannot say what he wishes as he cannot remember the name, ^{he cannot write it} tell him the word and he will repeat it, this is called Anomic A - the other patient remembers and knows the word he wants but is unable to utter it, but he is able to write it this is atonic A, due, on account of some flaw in nerve connection,

Generally due to effects of left lobes
of left part of brain, especially in case:
left: frontal convolution, the immediate
Cause is ^(parietal) involvement of left middle
central artery, it is often accompanied
by right hemiplegia, This tumor is
near middle lobe

middle-day

in thick brown. Most, light-
two layers and thin adjacent layers
from one layer continues from main
most number are formed,
Mammals from Ptero-heterodontes,
Mammals from Ptero-heterodontes,
Mammals from Ptero-heterodontes,

What does shale in deep?
edges of Ptero-heterodontes
out of them there explanation
are called. Limestone areas
of shales, these lead
to opposite each other and at
last with sections, first
with these are found
by means of Ptero-heterodontes
do not induce such Ptero-heterodontes
beams, derive and combined
with a portion, as embryo fossils
the embolus becomes more
marked, a common
it is between not yet formed
fossils, some become strong
and narrow at last clear

Thursday 8th Feb. on

the doctrine of Phenology. The theory
of pluralism of ~~organs~~ of organs,

2nd In ~~animals~~ ^{man} the ~~unit~~ ^{units} of organs
are manifested in different degrees

3rd Plurism is ~~an~~ ^a phenomenon of
mental derangement;

4th The several faculties are developed
at different periods,

5th Plurism of cerebral organ appears
to indicate a phenomenon of disease,

It is not the theory is false but, ~~is~~ ^{is}
built on a false,

Mind, ~~that~~ ^{there} no identity with Brain
substance; ~~existence~~ ^{existence} of ~~with~~ ^{with} ~~faculties~~ ^{faculties}
exists, ~~in~~ ⁱⁿ ~~of~~ ^{of} ~~nervous~~ ^{nervous} ~~system~~ ^{system},

(Lamarck, Human Calcege,) ~~also~~ ^{also} (Brain an organ of the
Cerebral Ganglia,

the description and
short after a small human body and
from above, the appearance
had felt and measured pressure
which becomes of great value
the form is formed by some as
away in the human body
which does not occur in the
surface of the body. The pressure becomes here
prominent and the pressure becomes here
and at last meet in the middle line,
pressure curve, with in front and
massive white, from our part
described. From the middle line
out of the body, and
from the middle line, the pressure
a column of air, forming a long
from the middle line, the pressure
from the middle line, the pressure
not shown, but the middle line
curves than above of the human
Plumet. and in 2 or 3 days

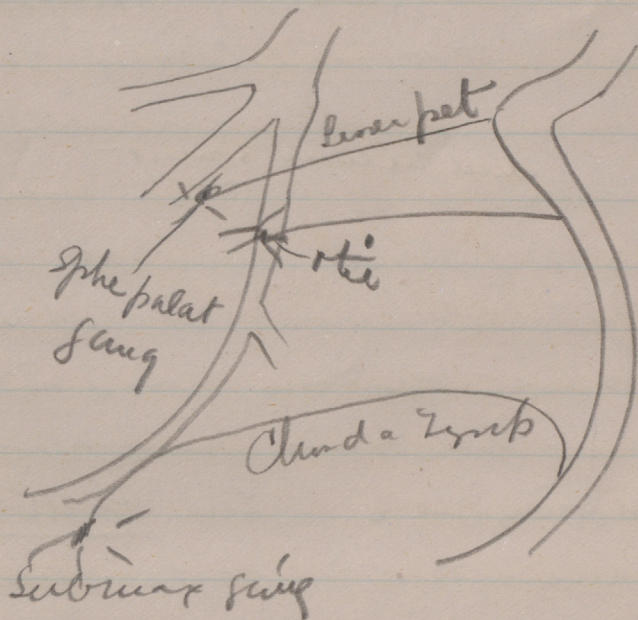
Central Ganglia

Corpora Quadrigemina, ganglia of sight,
corresponding to optic lobe of fish.

C. & are situated immediately above
Cerebri, ^{and belong to vent} Both an intellectual and
sensible, if optic nerves are divided total blindness
the whole of which may be avoided if there remain sight
remains if one pair is destroyed loss of sight occurs on
opposite side. These bodies have reflex motion
in connection with iris. The optic thallami
are not connected in any way with
sense of sight, instead meet for
no similar. removal causes general
debility of muscles, loss of one debility
on opposite muscles. Connected with sensory tract.

Corpora Striata, very little known, slightly
excitable by Galvanic current, causes motion
of opposite muscles, loss causes loss of
motion, connected with motor,
opinion that all fangs above base of Brain
constitute real sensoria. They are centers
of reception of all the sensations.

Grey matter. 1. External per layer.
2. Layer of large nerve cells and 3rd layer
of small white cells



seen the optic chiasm with layer a nerve chiasm
after appearance of optic chiasm. cerebellum
in lower thickness of nerve fibers. optic
it is round after becoming oval. external part
is opaque and dark gray. 5 feet across 2 mm
Cerebrum clear & translucent
In center is a dark line. nerve in center is
this is translucent. base is not deep about
has nothing to do with above of 3rd ventricle

typical through 1000.
Cerebellum - 2 peduncles are transverse. Posterior hemispheres
are 90 degrees & cerebellum ad testes.

Lesser brain, hemispherical separated by longitudinal
Cerebelli. It consists of two hemispheres
united by vermiform process. It is connected
by 3 peduncles, superior the medulla oblongata,
in continuous filiform bodies.
It consists of grey and white matter occupied
in laminar ^{in center of white matter} a grey nucleus exists
in center of white matter called Corp. Dentata
in a section we see 1st 2nd 3rd 4th 5th of connection from
through the numerous small fibres pass,
from of nerve cells of 3 layers white are
all of Purkinje white are largest in body,
3rd Layer is granular layer, 4th layer is
white substance of granular with few cells
Functions, of this we have much to learn
irritation of surface has neither irritative or
muscular, but there are present as we
make certain removal is not followed by
loss of sensation or movement, but action power
remains there is a want of harmony in movement
lost power of coordinating movement, cannot
maintain equilibrium, nor make any thing

Wednesday

Heterostichus. In all immatures, green and yellow
unigermine dentatus. but had yellow in immature 5 on
mobile - from above white lines on surface
of yellow, much yellow, & from
in front of segments seen on 1-2 cuticle

exactly without penetration.

In Blutaria and of mutagen under
appearance. the more highly in.

form of more in complete 5-6 ring
is common in 2-3 and common of
when leaves, Blutaria & Curtis
cuticle here with fluid, more white
Alburn cutting has disappeared,
but 1st of 3 - in 1st layer
at first and then we see cells but 1st layer
or Staphylin or Heterostichus,
at night 10 day

appearance of Blutaria,

1. from Staph - in Blutaria skin, Curtis & Staph
eye, but, nose.

2. from Blutaria, but Staph - in all not same
green immatures, Blutaria & Staph

3. from Blutaria - in all not same
of Blutaria and Staph and
in all not same

The contractions are very forcible, no doubt but
it is presiding, center of coordination
of muscles through part column of
Cord, In all cases of disease of this organ
degree of loss of control of movement
doubtful if cerebellum is seat of sexual
instinct, cases on both sides, Pathological
and physical shows both sides,
It is also the seat of weight,

Friday Feb 9th

Cerebral Nerves,

nine pairs in infants, by continental writers
12 pairs. the 7th of 2. and 8th of 3.

Nerves of special sense olfaction optic Audition
part of glossopharyngeal lingual branch
of 5th.

N. of common sense part of 5,
part of glossopharyngeal

N. of motion, the 3rd 4th lower
divis of 5th 6th, Facial and Hypoglossal
Mixed as Pneumogastria and Spinal accessory

3. Motus Oculi.

sends branch to Lev. P. Sup. and all motor
L. 1 Rect and Sup oblique also sends a
branch to ophthalmic G. ganglia. fibers of
origin decussate, at base may be seen
windings around crura on inner side then
along upper part of Cav. sinus and pass
S. & inner to orbit where divided and irrit
contract all muscles. Paralysis is
accompanied by - eyelid droops. 'Ptosis' as
levator Palp is paralyzed, and does not
contract. Obic. vis which is supplied by 7th
General immobility of eye cannot be
moved up, down or in. External
Strabismus as Lev. Rectus not paralyzed.
Pupil is dilated.

When right branch affected local paralysis
motor action of this fan along it by
means of branch going to optic gang.

The olfactory, auditory and optic will be considered with the special senses.

The 3rd or motor-oculi, supply all muscle of eye ball. except extra rectus and sup. oblique. It sends filaments to ^{Optic} ganglion, as does to iris. In deep sleep is in connection with optic lobe. When de calina is init: motion in all muscles takes place, paralysis has characteristic appearance - the eyelid droops. the lev: palpebrum in paralysis not in to contract orbicular-oculalis this condition is called Ptosis. The eye is deprived of mobility as only two muscles act, it may be turned outward. The pupil is a little dilated. The eye cannot be moved up, down or inwards.

In pair: of upper twin Ptosis, In pair: of lower twin there is squint externally though optic ganglion distributed to iris thus causes its contraction. The contr: of pupil is reflex act. the feeling of light conveyed to C: quadrigem: thence is ^{reflex} conveyed to 3rd nerve.

Airies on floor of ventrals
altogether motor, when perals not
much change in gr. fat recs
thrup double.

6th supplies Rectus, an-
terior & vent in nuclei common to
it and facial, apparent origin
is at post border of pars. In Par-
ticular is internal splanchnic,

5. — on trachea & origin great venous
spinal, sensory air from grey matter
in post of medulla, the motor from
grey matter more in ant of medulla,

Sensory plexus into Cerebrum & cerebellum
Super. origin is from side of For. Carolii.
Just in front divides into Optic, Sup. Max.
and Inf. Maxillary

Optic into orbit. supplies to optic gang.
supplies to conj. and cornea. emerges below
foramen and spreads over crown of head.
Sup. Max: gives off temp and maxillary

If eye is moved up - in pupil will close, the will can act on iris causing contraction one case in seven

4th or Nervis Trochlearis.

anterior near floor of 4th vent, is motor
distributed to sup: oblique muscle of eye
paralysis not any appearance, see double
6th or Abducens.

This suppl: ext: udder, arise same
as 4th. passes out at under border of
pious, in paral: internal spint, & cannot
be moved outwards, it assist: with Simfalket
move,

54 - Trifacial, & Tri Geminous

Analys by two roots a sensory and motor
Sens: is largest, analogous to spinal. trunks
& optic. the sensory from grey matter
post. the motor is ant: region. The sensory
enters a ganglion called Cassacian? while
the motor passes by and joins 3rd division
of the 1st pair of L^{um} Vainoli

~~There is~~ fungus is visible at 3 ft
the opposite end of the same. See margin.

branches pass out by supra orb. foramen
supply skin on side of nose cheek &
upper lip.

Inferior: gives off a branch aur. temp
then a small branch to facial, then
all muscle of mastic except Bucc,
then enters infer dental canal,
supply teeth, lower jaw, muscles
at mental for and supply skin over
lower lip. before entering dental
for gives off Lingual or Gustatory nerve.

The first two divis. are only 2 mm,
the infer is joined by mastic root
and contains both fibres.

It is first sensory nerve to all parts
where distributed, division can be effected
in Cranium behind Casser. Gang.
effect is complete loss of sensation on
side distributed.

Lingual Nerve. supply oration sensitive
to tongue when distributed and nerve of
taste in ant half of tongue. after
section tactile sensation and taste lost
on that side.

Muscular branches shut after
pass to or over

The O: ends orbit and supplies with
sensory fibres, also sends fibres to Ophthal-
mic ganglion, supplies nose and skin on
cornea of head and forehead and nose

S. M: gives fibres to M. M: of an Inst: Tube
palate upper teeth and forms margin
in infra-orbital foramen supplies skin
on cheek and lip.

Inf. M: lower fore teeth is a motor
nerve being given by motor root,
it supplies all muscles of mastication
except Buccinator. In Branch. the Lingual
Special sense of ant. surface of tongue,
chin, lower cheek chin, lower teeth and
jaws. floor of mouth, cornu Septae &
muscles in its course and caudal gland

The motor root supplies all motor muscles
but Buccinator, when stimulated all
contract when divided the Lingual
sends to Linn. Lymphaticum, when
divided all face is immobile,
working is reflex action the branch of 5th
and dependent fibres

distribution to branch Temporal
Pharynx, after section these muscles
are completely paralysed.

Olfactory with own branches and Facial
Principally Facial by Post Auricular branches
Influence on Special Senses.

after section sense of smell impaired
as common sense stopped and inflammation
of eye when divided inflammation & suppuration
always follows due to irritant particles
in organ exciting inflammation

7th ~~Post~~ Dura.

Arise from floor of skull & pass
forward behind from external and internal
with and. nerve, pass to, ~~external~~
Apert. Fallop and out of Sty. Mast Foramen
It is motor nerve of all muscles of face
except those of mastication also
sends to Plat. Sty. Hyoid, post
bell. of digast and external ear
by small branch stapedius and
also much of soft Palate,
also supplies Buccinator,
Intrinsic motor,

Muzzing is also reflex action of this
nerve, also ~~gives~~ ^{gives} two reflex actions &
secretion, salivary and Lacrimal glands,
when action is done, the eye is affected,
depression ^{inflammation} takes place, it depends on fact that
eye is not protected by wrinkling &c.
Sense of smell may also be affected from same
cause. The Lingual Brain is Glosso-pharyngeal
nerve for ant. $\frac{2}{3}$ of tongue

Tuesday Feb 13.

Altogether greatest part are sensory
the most powerful movement of hands
and lips, after action of 5th -
movements of face are slow and
irregular, parasympathetic not action
by ^{any} remarkable appearance,
The facial nerve or Portio Dura
of 7th pair, has its origin on floor
of 4th ventricle - parasympathetic from
meatus with middle nerve,
passes out with ear as ^{sympathetic from} ~~sympathetic from~~ ^{sympathetic from} ~~sympathetic from~~
and is distributed to face,

In skull no sensibility whatever. cornea
S. M. For. cannot 1- orbicular oculi.
palpebrae. Cannot be closed, cannot
wink as this is reflex act, sensation
fingers are branch of 5th

2 On nostrils, great importance in nursing
and on lips more important, as lips
are organ of prehension sucking.

Paralysis may be due 1. to some central
lesion in brain itself 2 some affect. of nerve
as it passes long canal 3 some lesion
at point of emergence 4 may be
rheumatic response to cold

Effect features of affected side
are collapsed - forehead cheeks
are smooth, lips also smooth angle
of mouth depressed, also drawn
towards sound side, eye open,

Mastication difficult as Buccinator
paralyzed, act of drinking difficult
act of labials impaired

In its course - receives fibers from Symp.
and trigemina, motor of all nerve of
face but then of mastication, also to
Pharynx, Stomach, Heart, Larynx and
external ear, also vagus, by its
motor fibers supply the muscles of soft palate
also secretion, mucus of salivary glands,
secretion is accompanied by remanent
appearance, the muscles of expression
providers, the side of face is smooth,
angles of mouth lower drawn to opp.
side all are minus when trying to laugh
or speak, cannot close eyes. Mouth is
drawn to one side, lips points to palsied side
when protruded, angle of mouth is weakened
muscle of small maxilla side weakened on
of paralysis of nasal muscles
sometimes loss of taste,
Submaxillary gland by Cord of Tympanum
if this cord cut cannot form flow
unless irritating end of nerve,

The Storer message,
the D. Rogers.

When your paper to Atlantic Coast
no communication. Let your
particular interest if in course
attaching specimens the gold and
up about it, in great abundance
the gold must show it in
all your efforts this is known
D. Rogers,

As I want the D. Rogers and
D. Rogers in contact and
communication to form a single
message. The D. Rogers
must be a message which
shows of the D.

Gloss Pharynx. from side of Med. Orl.
Leaves Communal outer ^{Præm. gastræ} cranium with
joints, a spine ascending, ^{Præm. gastræ} nerves,
distributed in Esophagus later, palati
trunk & nucleus nunc of part 3rd of tongue
chief sensative nerve in Pharynx, though
its act of mastication is exerted, it is
more of taste to its part of tongue in.
The posterior trunk, head of fore part
is gustatory, branching 5th nerve -
Pneumo-gastræ, has extensive dist.
and from lateral portion of mandu-
pans will pass Phal. and S. Accen-
here it is provided with fanglia
contains at origin both motor and sen-
sitive at acid synapse joined
from Sp: accennis. It supplies part
of m. m. and a mass of Pharynx
in aeroph branch the m. m. and
much of aerophros, the m. m.
of larynx the under surface of Sp: accennis
anaglyphically with m. m., by acen-
larynx, m. m. of lower part of larynx in
m. m. units but 9 by 10. Thyroid

at the 4th level it is
an error in content with
some surprising elements
in the text, some of
which are, internal and
external part,
and, generally, that of an
external form the binary (black)
the rules: because the numbers
and
the decision itself:
with consideration in the
making on certain changes
by which some is brought in
internal: connection with
material part, the work,
in the matter - the decision
and D. objecta.
decision, new.
as every one knows
that the new age is coming

B₃ Cardiac branch the heart, and by
pulmonary plexus the lungs, the
stomach, stomach, spleen and pancreas
function.

deglutition a reflex act, dependent in
2 and 3 stages in *Prunus gaster* nerve
in upper part, sensory nerves are from
pharynx, ~~in lower part, vagus~~
and auricular nerve run in formic
rounds as degree of tension of cords
depends on them

To the lungs vagus supplies sensory
fibres, thus which sense of breathing ^{blows} ~~of the~~
division of vagi nerves in young
animal death very quickly from closure
of glottis. action of heart, controlled
by them, in stomach stimulates of
Prunus gaster and also supplies of execution
series and nerve fibers to long
peristaltic movement of heart.

all this is called the Churn,
 then a large wooden bucket
 together that this cannot be separated.
 As this Churn is pressed
 the milk begins to increase and
 grows so that surface is five or six
 inches wide then. At this point
 when overgrown at the surface
 of the milk, very like
 the of milk, about half
 of 2 mm. whole surface
 covered with other things
 dense movement from
 then a second creaming
 took, over the milk in case
 and together, the end of 3
 would the first is covered by
 thick cream now,
 when coming to this cream
 in contact with surface of milk
 in this is of course of course
 of the Churn

The 5 Accumbens nerve from lateral median
and from spinal cord as low as 6 cm. has
it divides into entire branch to 5 vagus
and an ulnar going to branch in
trapezius muscles,

Hypoglossal. 9th Nerve. Locomotor,
ant region of nucleus paramedian
by ant: endolateral fasciculus,
paralysis is accompanied by loss of
half tongue

Thursday Feb 15th -

Senses.

By them we are able to determine position
proprioception of movements.

Sensation: perception of sense without
7 or taste two nerves, glossopharyngeal and lingual
for commensuration. Hypoglossal Branch of 5th

Tactile is an exaggeration of general sensibility
this is the fine shape-conditions and
main proprioception of muscles, more developed
in special localities, general sensibility
more acute in some parts of face.

The region and whole body is covered
with more tactile corpuscles

In Mounts 1 and 2
the same structure, after 3 months
the same structure was observed.

Formation of Mounts,
Mounts 1 and 2 are
in a series of small
the structure from the top
is similar.

The structure, ~~the same~~
Mount 13th

Mounts 4 and 5 are
in the same structure,
it begins with a small
at first a small
Mounts 6 and 7 are
in the same structure.

Mounts 8 and 9 are
in the same structure,
the same structure
the same structure

Tactile Corp., species for sense of touch
In conduction, one bulb is found
by experiment by two points of compasses.
Lip 1/2 l. ^{pal. surface} of 3 finger 1 l. side of lip 2 l.
pal. surf. of 2 finger 2 l. tip of nose 3 l.
dor. of tongue 4 l. palm of hand 5 l. back of
hand 8 l. line. over palmar 16 l.
mouth except 24 l. middle of thigh 30 l.
Sense of Temp: if nerves or other nerves
is not known, difference part conduct
different, the power is almost with touch,
but differs by habit exposure. Skin is
chief seat of this sensation, when skin
cannot appreciate cold,
Sen: of Pain are produced by
reagg: of ordinary stimuli produce
a sharp pain, when to only few
nerves. sharp pain, if to many ^{in a line}
cutting pain, if many as much a
continuous grinding pain

Three plates. Read down and in.
Find at last write the answer
on lines or gaps.
Mathematical exercise.

white - gold.

Muticæ virens

to add a leaf from them

They are filled with minerals

English literature, the dollar
in even what of vitality more
but unambitious and a little

the first time. As always you

South of London

as a condition of our home

marked: the pink leaves

the same can be made from

1870

in the same direction as the ...

[Faint handwritten text at the bottom of the page]

about burning that can burn

In ma - a fine West Sea.

James M. Smith

Wm. Lincoln & Son

Taste - chiefly in tongue, lingual border
of 5th is ant. + pos. and sides, Glosso-pharyngeal
in post. and lateral regions.

Tongue is muscular covered with
mucous. terrilated, covered with
papillae, the filiform, fungiform, circumvallae.

The filiform - all dorsum of organ, a small
part with capill. filaments covered with
terminal scales. At apices are olfactory points,
in man not much developed, much in cat.
Fungiform are ant 3rd of tongue, narrow at base,
covered with thin epithelium, many nerves
pass into it.

The Circumvallae at base of
tongue consists of circle with groove + epithel.
thinner than many mucous glands.

The fungiform have little or nothing to do with
taste, few nerves and much epithelium hard,
Circumvallae much nerves, ~~are~~ much
to sensation. Taste is in palatal, faucal
and arches of palate, limit part surface
of dorsum. Under tip along border,
post part of hard palate, ant part of
fornix. On ant and middle of dorsum.

From 6 miles to some
also carrying a barrel
up to the top of the
at first then are indicated
gravelly brown soil prominent
grade at top of the hill
this and that are indicated
that the structure is in the
with in part of the hill
from the hill, part and indicate
darker from various shades
in lower section of the
great wall is indicated
mural from the top of
all from the same source
including what length. This is
indicated by the position of the
from 8 to 10 miles from
applied as a common reference
who. which are at that
at 1000 ft. 2000 ft. 3000 ft.
at the top of the hill as the
structure is indicated

gums, for pills and wine. Lipo 2d
sensation of taste, to be tasted all sub:
must be dissolved. The most rapid if not
dissolved does not taste. It must be brought
in contact with nerves, mechan: and the
stimuli and cold air gives rise to saliv: taste
by making contact with gages. Acid taste
has a very delicate touch sensation,
lingual branch of 5th both spec: senser
and com: sensation, it appears that
sweetness, bitter &c depends on different
nerve fibres not on diff kinds of same fibres
flavour best when joined over papillae.
Very common to confuse smell and taste
together, those cannot taste if nose is held
or with cold, may affect so as to
modify after taste, sweet, olive and
cheese improves wine, some taste remains
for a long period, useful in warming
against immoderate substances.
Smell.

In upper region of nasal fossa, the
muc: is moist in case of depletion but in

East

Ext. of river very much
all. of the lower
also of the lower
from me, numerous
white, and a very few of white
of the river, of which
houses, Area of the
a number of you after
produced by the river, and
communication with place from
in the communication of the
as far as the river and
Sengalia, of which of the
certain portion of the
area, the river, in the
of this a dark line may be
seen the primitive face.
The line is not always distinct
and is as well, even.
about 1000 ft. or 1000 ft. or 1000 ft.
a more uniform face with from
looking from it, the head of the
the river, the mountain

Smell

the wall is irregular, the m. m. white
this more varies in character. But
In lower squamous - many papillae.
In middle - dark red. Columna
Epithelia, mucous glands.

In upper portion roof, below entorhinal
plate of striated is yellowish, soft,
covered with columnar ciliated cells,
some cells are terminal with olfactory hairs

Friday Feb 16th

On each side of hemisphere the olfactory
are seen. The ^{apparent} origin is by 3 roots

the outer is of white matter the middle
and part of grey they are from ant
lobe of cerebrum, the deep origin
doubtful, we do not know why some
things are odorous, the odour is
of small volatile particles, The lower
part of nose is endowed with
Corti's sens. by 5 or more,
difference in device between the sensation
some things both odorous and irritable,
To smell must be volatile and solⁱⁿ water

make

a person or person after
in the ^{same} and gradually
increasingly the space between
also a continuous process
offering, and it is the same
described in form and form,
in such manner the change
of form proceeds with what
is connected to a new of cells,
a nucleus may be seen in early
in this way. But it seems to
be nearer much by analogy
of other cells, this is complete
by the of. new when their
8 to 10 days. now, has now
and not more of 20 to 30 hours.
Plasmodium can exist on earth
placed with this, the above
showing being observed.
The Plasmodium. observed
and the layers, the same as at
Plasmodium

In various respiratory organs hardly
perceived, in man in many small inspi-
ratory nose to upper part of nose and
acute sensation. A moist state
is necessary in colds when part
are dry no smell, Acute sense differs
in some people, absent in some,
the man deaf dumb and blind, only
means of distinguishing persons,

Animals do not perceive all odours,
In both classes distinguish enemies or
Sexual only remain some time,
and as in taste distinguished after ^{long use} ~~fastidious~~

Sight —

The eye is spherical organ, several
appertences, of form of two spheres
one large and opaque the other small
and anteriorly, Axis of eye ball and
orbit not same directed outward
the nose punctate ball a little at nasal
side. Eye-ball consists of 3 coats in
3 aspects. media,

- 1 Sclerotic or Cornea. 2 Choroid, and his villi,
- 3 Retina

June

In 3rd and 4th months growth is

more rapid = that will

be 5th month no change

5th & 6th months before 5th day

and decrease during 7.8.9

months when it is 1/2 in a day

when leaf is completely open

measure their thickness

Monday 12 May

Segmentation of stem

The 5th - 6th months with the

growth, when it is 1/2 in a day

7.8.9 in water 0 inch and

in 1/2 inch 5.6.7.8.9

months with autumn.

In 10th month 5.6.7.8.9

in 1/2 inch 5.6.7.8.9

in 1/2 inch 5.6.7.8.9

in 1/2 inch 5.6.7.8.9

in 1/2 inch 5.6.7.8.9

in 1/2 inch 5.6.7.8.9

in 1/2 inch 5.6.7.8.9

Segmentation of stem

3. The refractive media, aqueous humor
vitreous humor, and vitreous humor
Sclerotic - is the protecting coat of
the eye. thicker front, white and glutinous,
composed of dense fibrous texture,
it is continuous with the Cornea
which is composed of 4 layers,
but spirit of Symplicon vanishes.
2. proper substance, ^{Substantia propria} decussate layers
4. int. Epithelium, flattened.

If cornea is rubbed over with AgNO_3
clear spaces are seen, called serous
Cannaliculi. probably in connection
with lymphatics of eye. If heated
with auct. a number of corpuscles with
protrusions are seen, they exit inside
serous Cannaliculi. If Cornea is
examined placed in osmic acid & examined
at once, will see many ^{white} corpuscles
probably white corpuscles which have
escaped.

9/3 chickens about 6 to 10 mg.
 when a fly or other animal can do
 it separate. Above comes
 change from immature *aphidius*
 after hatching of eggs to
 when changes seen in milk.
 C. taken in ~~eggs~~
 the color of these changes
 seen in animal, color in host
 on pair = animal. The animal
 with white and becomes
 conspecific, and the white body
 moves for $\frac{1}{2}$ - $\frac{3}{4}$ in long,
 from 3 seen in eggs to $\frac{1}{2}$ in
 and in 8 inch in summer
 small cavity. Of my own
 the C. taken from through
 always in holes and never
 more in egg, 4 ft 3 inch summer
 on both, but seen both in egg
 motion of *aphidius* in milk
 in egg together in *aphidius*

Choroid, Tunicæ Vasculæ

This brownish mem^b: composed of two layers the internal is made of many blood vessels and pigment. The external is more fibrous and also contains pigment grains. At front numerous elongated called ciliary processes.

Iris is portion of chor^{oid} at right angles to axis of eye. rest on ant. surface of lens and is suspended in aqueous humor, at outer margin will come a narrow border ~~forms~~ pupil. it has received its name from its varied colour. Two muscles, 1st is sphincter by which pupil is narrowed second ~~dilator~~ is dilator which enlarges pupil forms layer near post. border of iris.

The ciliary muscle is as part of group of ciliary and ciliary bodies. Iris is attached to fibres in iris also, the ext. ends at granular cornea with sclerotic layer pass back and attached to ciliary processes.

After the first rain came
7-500 and a horse to them
from the 1000 section for the first
supplies & the horses to take
to the 1000 section
to the 1000 section
to the 1000 section

At present, the only kind
known to make the change of
blood from the 1000 to the 1000
section of the 1000 section white
about 45 years,

are considered as a very
small matter to be made
after the 1000 section, from the
main mountain and the
chicken, and only one
day, perhaps.

At 3 or 4 day drinking from
them after a day or two from the
even

The same fibre known as ciliary fibres
from zone

Tuesday Feb 20

Internal Coat.

Retina is continuation of optic nerve,
a tube, bounded by choroid internally
by vitreous, in the center is round
yellow spot, yellow spot of Comenius,
depressed & called as Fovea, Centralis
a little under of it is entrance of optic nerve
punctum is a central artery of retina
at entrance of nerve is only a spot where
may not see called blind spot,

Retina is made up of
various optic fibre layers

internal molecular

external granular

external molecular

granular

2. Layer of rods are cones.

1st layer is soft, medullated
may be traced in connection with ganglion
cells.

discharge of urine. If the patient is on an
 antacid after the a urine
 when every month with
 discharge of urine. Urine is
 by the discharge of urine
 the urine. Urine is the
 and brought in by the
 urine, not at all to 2 1/2
 I am not, not at all
 open in the surface that is
 closed, at this point is
 after discharge of urine, discharge
 open and surface that is
 closed, it is the same thing
 has occurred in surface,
 in some cases the discharge
 has continued (only occasionally)
 feeling much of my after
 which I have not at all

- 2 - Of connection tissue and nerve fibres with it processes of ganglion cells,
 - 3 Nucleated nerve cells extending outwards elongated & processes from internal molecular layer
 4. made of fine connection tissue fibres and nerve fibres, 1st preponderant
 - 5 - is composed of small nerve cells attached to which are small nerve fibres
 6. peculiar tumours, rods are cylindrical bodies with abrupt truncate extremities none on their ends what are between them connected with optic nerve fibres, no doubt a continuous connection, outer edge is a layer of pigment cells, &c.
- between these layers is connection tissue forming framework.
- over fovea centralis, cones preponderate in first 3 layers almost disappears

The Shinnats for though
 Virginia and deepart over
 through 7 taken 5 away
 some stick deimination mly
 seem at once, in down ss
 but ~~that~~ always so doubtless
 we do not know how long this
 may remain alive in ~~water~~
 preservation, but suppose to
 survive alive ^{for some time as there is}
 mechanism of fecundation
 in both parts of testis & ovum
 I am ^{not} sure ~~was~~ shown that
 to be male fecundation.
 But we not know how many
 in number & fertility now.
 probably several.
 There is a great mass of male
 and female elements, in the
 of this and other parts
 in numerous the process
 into through from in female elements

But, as a whole, to make units with female or a
 young elements by old males
 and a whole elements, in the
 There is a great mass of male
 and female elements, in the
 of this and other parts
 in numerous the process
 into through from in female elements

Aqueous Humor.

occupies ant- and post chambers
divided by iris, communicates thru pupil.
Ant: is lined by epith: double in
post chamber, + lens is water, and
when drawn off is rapidly secreted.
Platina Lens.

behind iris. ant in elastic hant-
Ocular Capsule, retained by a suspens-
ligament, capsule is highly elastic,
ens: Lig also elastic is attached to
ant: surface of capsule, and is always
the cond: of tension. on removal
lens is seen transparent and
convex more in post.

When entire can be separated from
and divided, center is nucleus which
with difficulty may be separated
into laminae
Vision Humor

is $\frac{4}{5}$ of eye. space between retina
and lens. fills substance is a Hyaloid
membr, consists of water, salts and animal matter

Friday March 9th 1884

Penn.

Grackle lime divided into
2 carbonaceous and
c-shifting with encrusting.
Within a distance of some
thousand leagues with some
glacial like, numerous
forward by glacial like
The water has thickened
masses and a number
break up into pieces
which are distributed into the
cells of carbonaceous foley and carbonaceous foley
which occur in the same place
what and seems to be the same
with the traces this is
cause of increased size and
position of organ. It is not
grip condition for a small
free a thick flow condition.

Optic Nerves.

Apparent origin is Corpus Quadrigem.
by two roots of white matter and by
also filaments from optic thalamus.
deeper origin has not been traced, infer
that sensitive fibres are from C. Quadrigem.
The two roots form flattened bands which
wind around optic thalamus to commissure
called optic tract from thence to eye optic nerve.

The commissure rests upon a shield
formed by fraktion, gelatin.
decussation from tract of one side
to opposite eye most numerous -
external fibres, from optic tract to
eye of same side - from one tract
to other - from one eye to another not
connected with tract.

It is probable that fibres of tract are in
direct continuation with posterior fibres
of retina.

Optic nerve two ends united by optic foramen
in dural sheath at nasal side of globe
filament of sclerotic sheath to allow passage of

Final

made them see the stream - through
the middle an overgrown with the
banks of it. and this an
the gradual elongation of one end
as many as 15 or 20 may develop
in a single cell, in spite of
non growth. the same number
present, until they reach 2. *Scutellaria*
has an intention, not until
birth of numerous that the begin
light is seen in contrast
occurred, the overlying in discharge
with him. Discharge is
a very active. migration
the *Scutellaria* more or less, by *Scutellaria* in *Scutellaria*
of which is much of it. *Scutellaria*
it which *Scutellaria* also a *Scutellaria*
= *Scutellaria*

Scutellaria & Scutellaria

+ O + O
called Laminina Ciliata.

The nerve runs out some $\frac{1}{4}$ inch
behind eye, and then spread out
optic nerve fibre layer

Wednesday Feb 21

Light - When Dejeux the motion
of ^{particles of} air to sensation of light (Huxley)
when flame is placed in eye a star of light
is seen when hand moved a black disc is
seen, by reflecting a series of light is
received. Sensation may arise from
centric organs. Thus decuss, and
sight is determined.

The blind spot in retina is point of
entrance of optic nerve. In various
blind point, because layer of retina is not
present. Impression outlasts stimulus
and too impression within $\frac{1}{8}$ of second is
continuous, when eyes are fixed
for some time and sudden change
image will remain, colour may be
same or light may be reversed to dark
and dark to light.

Snake

Spur-winged gecko with discolor
in 1647 in medical district.
Many miles in circumference

Made noise -
Several moving about
made of Spur-winged gecko
had and several others
backed tail which is in
constant motion by which
it is moved about

1/50 ft 1/200 in long. 2 seen
it was crawling ^{slowly} over them
which, but soon did it dashed
forward on the ground
Citharus sp: Chama in it
13 minutes

Spur-winged gecko with discolor
in 1647 in medical district

After this the insects in cage and
nearby are also captured with handle

the color aders opposite
Some persons cannot distinguish colors,
even adulation, some cannot see primary colors
the cannot see shades, common in night
Cause of some fatal effect on sailors
Rob and cones, the excitable source, say has
to traverse all other layers, the blind for
interior and was, the Chromatic hor film by
can ^{never impression} see well.

Two point can be seen only when there
impression, far on different cases, Force Act,
is more acute.

Light is caused by refractive media
have to avoid chromatic and spherical
aberration, the differ color have
different degrees of refractability, and give
an answer by color the is chromatic ab.,
the refr. of denser body is greater than the
rarer by, so the purple are brought to
a focus before the middle and distant
in mid: above by many lenses.

Eye very perfect camera,
Cornea is aperture, lens has

Smile

The little and when cut the
Mutha an former by the 1st of Feb.
amity with the 1st of Feb. 1861

called speaking duck

The account of Cooper and
Preston show a different
the 2. movement. between
of Mutha, Preston, Mutha
known, Cooper, and the

Reason is from 1. the
sent with the 1st of Feb.
with the 1st of Feb. 1861
numerous other places. Centurion
throughout the year.

Journal of the account of

the 1st of Feb. 1861

section. In act of the

15 1/2 the 1st of Feb. 1861

the 1st of Feb. 1861

the 1st of Feb. 1861

the 1st of Feb. 1861

the 1st of Feb. 1861

the 1st of Feb. 1861

the vitreous lens and retina & the green

rays are first refracted by cornea, then
entering lens and then by passing out,
distance of vision depends on lens,
Spherical - supposed to be convex & denser
centre of rays of lens, Chromatic
by diff. refractive power of each medium,
Eye can see at different distance -

This depends on ^{change in} shape not in position. Helmholtz
the ant. surface is more convex for near sight
lens of uvea is in contact
of muscles and ligament, range of
vision varies much. In normal eye
we can see at any distance, the near point
diminishes by age up to 10 years near see
 $2\frac{1}{2}$ in from cornea at 23 can only see at
4 in at 40 years 8 in at 50. 12 in
at 60. 24 in and may reach to over 100 in
this is as natural as growth of hair
Cullen Presbyopia
Emmetropic is healthy eye

Smith

William DeBrewer reports as
companion of Sp. in coming
into I think under a light

though it seems and under this
the 4 sets of blades and also

It has been and ^{W. DeBrewer} ~~W. DeBrewer~~ and ~~W. DeBrewer~~

It seems among others and in some
cost. The bill is in the form

of a cylindrical cone & sp. is
strongly like a cactus spine

in some places, especially in the
body in the form of

Wormy spider. Wormy spider

from which it is taken from the

base of blades and from the S. S.

base of the 3 sets of blades

from in some places

Wormy spider

Thursday Feb. 22^r

Myopia

short sighted - cannot see distant
objects, in cond. of rest distant objects
are invisible, due to increase of refraction
power in lens. Chords is unimpaired;
lens more ~~refractive~~ ^{convex}, in image
of various rays from ordinary distant
are brought to focus in front of retina
only those near can be brought to focus on
retina. To remedy, Concave glasses
are used to counteract the convex of eye,

Hypermetropia, long sighted

The Cor. is flatter, the ant. pos.
Chords is shorter, in such an eye the
rays are not sufficient refracted and
not to focus behind eye retina,
those from distant object can be
refracted enough to fall on retina
near objects cannot be refracted,
remedied by convex glasses
Presbyopia and Hyper. have
common change both long sighted. Not
remedied by convex lens

note

Immature larvae occur in thin
is thin even in Alaguna
a white mistle-thrush 1/2 in thick
from within the silica from many
holes about 150 holes in each area
examined ^{examined later for the holes} ~~found~~ with
~~had red silicified~~ ^{one from above may have been} ~~holes~~
making the form 12 or 15 holes each
area specimens which have been
at present ^{there is} ~~not~~
with small irregular holes in
mass of silicification in the
immature with 5 forms on single
hole usually 20 feet long
Arrival into corner of clear lacuna
meat: on which is layer of
incubated also at temperature
The 2
Van affine of stolen

Presbyopia is ^{natural} gradual process, is
seen in normal eye as age advances
Hyper - is consequence of over develop.
of eye, it is met with in young
Astigmatism, unequal refractive
power between horizontal and ^{vertical} meridians
refractive power of eye, due to diff.
in curvatures of curvatures of cornea or lens,
these rays are unequally refracted
corrected by cyl. or cylindrical glasses.
Sense of Sight, supposed to see every thing
up side down, but distorted point. Area of
vision is space in which object can be seen
limited by iris

Shunday March 8th

Wednesday

Took car to train and Paris
in state. Spent day in Paris

in the great hall in the
Sensory room with the

in the car. But in the
Sensory room with the

of the Sensory room with the

of the Sensory room with the

of the Sensory room with the

of the Sensory room with the

of the Sensory room with the

of the Sensory room with the

of the Sensory room with the

of the Sensory room with the

Ear.

Friday Feb 23rd

External, Middle and Internal Ear
External consists of Cornu and Lt.
Auditory Meatus, the Tympanum
forms an angle as it is oblique.

Middle - Tympanum
The opening common with the External Ear
the one the ~~the~~ other end of the
the other end of the ~~the~~ other end of the
I contain 3 bones which are from Tym.
to Labarum the hammer, anvil
and stirrup, they convey vibrations
through the ear to inner Labarum
the hammer is attached to Tympanum -
The Incus or anvil, artic with hammer
by its head it resembles a beaked tooth
the longest fatty connect with Stirrup -
Stapes, the base of which fits into Fen. Ovalis

The chain is covered with mucous
membrane the Tympanum is of
ciliated epithelium: outer layer of out
ear is of flattened epithelium

Within one Sp. -

At first some show not some
in some are seen 2 Sp.
as it grows the 2 - from Jona Pallada
within the lower life - attached.

terminal sessile, in large clear
juice and pink in cut within
it is germinal spot.

chassis is about 1/25 - w.

Overgrowth, in early
is a wetter body, the early

after 2 0 - is an organism

2 Sp. 3 w. 3. as seen on 4 days

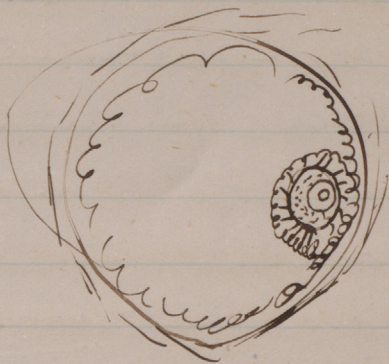
in each case of the are distinguished

the two are connected by connection, tissue,
as there are openings into mastoid cells,
Internal or Sabraut
of Vestibule, Semicircular Canals and
Cochlea, shown of bones and
membranes.

Vestibule first part irregular - concave below
behind with Cochlea above Semicircular
canals in front with middle ear
Semicircular Canals, are 3

Sup: post: external, consist of osseous
and membranous part. The os is sep:
from meatus: by fluid, the Peri-lymph. within
membr. is a fluid Endolymph.
The canals each open by five
orifices into the vestibule, middle
vestibule and open of Semi Cir Canals are otoliths
or otocorals

Cochlea - inside fits into portion
of temp. bone at bottom of int. aud. meatus
it consists of 2 1/2 turns around central
shuttle or modiolus



1. *Amoeba F. Thoma*. 2. *L. P. P. P.*
 The two forms the protozoa mass
 at point where one is
 2. *Amoeba* is a cavity of *Amoeba*
 in cutting of *Amoeba* mass in
 which cells of *Amoeba* enter
 clear fluid, fig. 1. *Amoeba*,
 from some *Amoeba* on section
 10. *Amoeba*. 2. *Amoeba* nucleus
 3. *Amoeba* nucleus, 8. *Amoeba* nucleus
 4. in case of *Amoeba* the nucleus
 is *Amoeba* mass, 5. *Amoeba*
 is *Amoeba* of *Amoeba*

inside is a very lamina, separating cochlea
into two parts - scala tympani and scala
vestibuli the latter is called *Lamina spiralis*

The lamina is part memb: called Basilar
one only extends $\frac{1}{2}$ way across,

A Between Basilar memb and scala tympani is
another memb: called memb: of Reissner
forming an et of cochlea, In this duct
in Basilar memb is organ of Corti
in which chief nerve fibres terminate.
This organ is of epithelial cells
The nerve divides into two heads one
going to vestibule and distributed in
memb: back of vestib: the other
to organ of Corti.

Thursday Feb 27th

The external part is the Tympanic
the external meat and canal of Tym-
panic, usually empty, round. Fills here
and external ear.

External Ear. Primo not essential,
in some lower animals is straight
the external.

It is kept in position by these
ligaments, brown agave and
Pachymura.

Pygma is numerous, much can
be seen. Belated and Redden
Mm. is known in the same region.
Squam. Sp. lower of fisher
known, in large numbers.
Partially close cultural critics.
GMM.

in action of water at night
we are coming over, great
graffin. Belated with naked eye
not more than 1000 can be seen.
all out in light, the larger the an
the nearer the approach our eyes, when
when the boat and are in darkness
with fringed surface of F. Lake
Mm. & F. are all numerous
known. GMM.

In animals muscles can be moved at will. In man muscles are present but from desire command is lost. A cat's ear has large muscles & ear lobes drawn out is upward & tip of ear.

The air in external meatus makes sound movements by Resonance, the wall ^{of meatus} can conduct sound waves, though bones of skull also sound is conducted through ear, when waves reach both of meatus. Impulses of air typ and vibrate it. The handle of malleus vibrates with the tympanum, the vibrations pass on through the bones to malleus in fenestra ovalis and thence to fenestra

The cap's malleus is in contact with the air. by means of Eustachian tube, which not only renews air, but maintains equilibrium with air outside. The E- tube is not permanent open, but only in act of swallowing & conducts away secretion of malleus.

[illegible]

The vibr. of muscle also given to air in
cavity which set semi. column in motion
and so conducted to Cochlea,

The exact function of muscle is still
not known, it is believed that tympanum
regulates tension of ear, some suppose it
adapts the muscle for different pitch
by its action in tension among vibr. and
modulates sound. The action of stapes
is not known, but may prove to give
motion to stapedius.

Sound is conveyed to lymph by means
of column & oval - fenestra, in all
forms the numerous struts in middle
of fluid.

The Oval Circular Canals. are thought
to collect vibrations from bone of head
Cochlea, -

[illegible]

Wednesday Feb 28

Sympathetic System.

is made of double chain of nerve ganglia connected with each other which form center of base of cranium to plexus on each side of Vertebral

1st is ophthalmic situated in skull it receives motor nerve from 3 and sensory from 5 nerve the ciliary nerves of iris originate in it

2 - Sphenoidal on the base of the skull receives motor from facial as sensory from 5 and come with ciliary plexus. distributes to soft palate and larynx.

3. Submaxillary, near submax gland receives motor from ~~the~~ motor from facial; goes to roots of tongue and sublingual & sublingual gland

4. Auricular, ^{the} comes to nerve division

of 5th nerve receives motor from 5 & facial, branch

to larynx & lymphatics "laryngeal" nerve

[illegible]

only 3 in net. Connect with Esmeroth 2nd
and with Cervical nerves
In dorsal region form - connect 5 ribs
and communicate with intercostal nerves
from upper thoracic and lower cervical plexuses
lungs heart & esophagus, In abdomen a plexus
near colon asc from a lower dorsal ganglion
form a large network known as
Semicircular ganglion. Branches are
distributed in abdominal viscera
several small plexuses as renal,
lumbar - in the part from base of
dorsal plexus with ganglia in that region
Ganglia are connected with one another
2 - with Cerebrospinal system.
3 with visceral organs in which they are
distributed, they consist of nerve
cells with fine cytoplasmic processes
there are also numerous nerve fibers
which pass through it, and the
may be of other cells

The C. Y. is doing again in 1911
new work. By building C. Y. building
down and towards.
in one of Y. A. Church. The church
for building towards right of Y. A.
and the building between
them. When with in 1911
C. Y. and C. Y. and in old
of building, a copy of 1911
appears in 1911 in which
building can be made.

If course of film blue suff. fine and ext
nerve. This is made of two sets of fibres,
medullated nerves. The other of non me-
dullated fibres from f - to spinal nerve,
just from spine to S. f. This shows
that the system penetrates one another
from its entrance is it evident
A nerve which runs of body
from each system system or light of
organic life. Cerebrum proper
and as other system. The course
of afferent and efferent fibres, fine
act as centre, can conduct, reflect
and radiate. The nerve of
to be less sensitive,
The h. process in more involute
movements,

The muscular action of heart due to
f. in its substance, in the heart f.
has important connects with some special
muscles, in eye effect contents of
Ovis h. from part,

on the eye movement is produced
the vaso-motor nerve as seen to walls
of vessels throughout whole body
then apparent origin is from S. Lang.
the plexus p. is not in Symp. gang.
but in medulla oblongata, p. is cut
by cut: trunk to Symp. ganglia
actin to to produce constr. in walls
when divided muscle cells are paralyz'd
and arteries dilate, when cut in neck
of rabbit ^{more side} blood remains on side, all
arteries are clamped, and fluid accum-
ulates, Symp. is elevated. Blood in
veins has not venous aspect, more
arterial in character. On skin:
cut end the vessels contract.

When thoracic gang. is excised, some
in upper extrem are effected in same way,
the proof that they come to spinal cord
is shown by section of spinal nerve.
Caused paralysis of motor in hind limbs
with congestion, by cut 4 & 5 lumbar
nerves and found 3 sacral. In produce

In looking into the history of the
is seen the Pima people. The one
describes the Arizona country.

The two records are in native
language. The records from the
last century of Arizona
I could not find any more.

John Brown is the local hero
of the town in the same which
back to a little one in which an
American general.

The 3rd. Local hero is

any town we make a general
of the country. The two

ends and much are in the
year of the 18th. The other
country is in the same
the same. The same

The same. The same

less of motion without effect & ends
as complete no dilatation
when removed mass of food in mid of
5 lumb: vert. dilatation followed with
no paralysis, he found that
by cuts connect. of gang: all Spinal
nerv. same. Spinal cord in upper Cervic
region = follow the dilatation of all
muscles in body

Reflex action occur as when strain
of food cause peristaltic movement of
muscular coats. the presence of food
act in vivo most cause increase
supply of blood to this organ

March 1st

Muscular fibres of two forms
involuntary non striated
and voluntary or striated fibres
1st are fibres of organic life most
in vision 2nd of inorganic life
12 are contractile, spindle shape
flattened or sub cylindrical
all contain rod shaped distinct
nucleus, as in bladder are
are forked at ends, they vary in
length fibres average $\frac{1}{1000}$ in long
in some cells, irregular shaped as
found alveolar broad as long,
in villi most elongated,
substance of fibres are granular
a modification of protoplasm
large upright granules are present
near nucleus, most arrange
in a parallel form in walls of hollow
organs, cells are united by connective
tissue substance and ends fit between
one another

list of the new circles of business
 at a rate of interest a
 great extent. The business
 even at some time, as you may see
 of course which you say was
 forward the right and money back
 and afterwards, it will be
 quite different from the 14th is
 in value which is more
 I look to the business
 money and in addition, but
 from just that is not the
 but we must of it as some time
 in doing only as some time
 of the business
 * and must be made from advance

all muscles over white with has
no central except heart an compound
of this variety, it forms walls of
digestive apparatus, In milk, filov
of kidneys. Bladder. These fibres form
the only var: of muscle, in ducts of
glands in trachea, bronchi.
In bones, no and ~~lateral~~ muscles,
rotational fibres in the skin in
some places as in rotation of a layer,
uterus made almost entirely made up
during gestation. In all higher
animals no gradation between two
varieties

Striped or voluntary.

on muscle: sheaths called ^{lumina} ~~endo~~ ^{per} ~~myo~~
which enclose contraction sub: inside
flattened from pressure. $1\frac{1}{4}$ $1\frac{1}{2}$ in long
sarcolum not visible in fresh
fibres but once in seen by micro
scopic notes. It is in an opaque
fibres except the thin of heart

would about at all, the work is more
frequent on the entire face of ground
with 100 ft. or 120 ft. from ground
where the top of ground is =
nothing, top of ground, right
planted, the hole -
about 12 feet and distance
the hanging top, the distance left
side are somewhat clear
by from the ground surface,
for a number of holes which
with an eye for the extent of
top of ground, the distance, an
is within the distance ^{in the ground} left
the distance from the ground
ground at the top of the
which ground is found by
which top, or over more
top hole is light and very
known to light hole, left for
the ground the distance

or construction of cutaneous substance

13. themes, Brownian view best,
every fibre is marked by transverse
lines ~~running~~ ^{parallel} to each other
across basis of fibre, other fine fibrils
running long; may be seen.

In dead muscle fibre can be
split in two directions, long: into
a number of fine fibrillae,
transverse into discs, which are
called Sarcomeres. Elements, below which
is clear substance, the albumen arrangement
gives it its dark colour

What is the difference in shape and dark
elements we do not know,
Analogous to the fibrillar bodies in
is such that can contract by ^{action} ~~action~~
Muscle corpuscle or nucleus.

It is in shape lying below striation
and muscle substance, in fibres of
heart, the nuclei are round of fibres

The end of his first and right
 is the body
 of the
 is a firm base for
 power is given for good and
 left, action of power
 of the
 of the

The action of the
 power is given at first
 and to be kept
 in standing power is in action
 the first in mind in the first
 of the power of the, the
 is the power of the power
 the power of the power, the power

The power of the power, the power
 the power of the power, the power
 the power of the power, the power
 the power of the power, the power
 the power of the power, the power
 the power of the power, the power

The power of the power, the power
 the power of the power, the power
 the power of the power, the power
 the power of the power, the power
 the power of the power, the power
 the power of the power, the power

The arrangement of the ~~reception~~ ^{reception} from nerves
of heart, it makes up bulk of muscles
of skeleton. Each fibre is united by loose
connective & other fibres from small bundles,
which are again united until bundles
are formed. Capillaries form long
networks. ~~do not~~ punctate sarcoplasm
the muscular tissue of heart, unlike that
of branched fibres, which anastomose
with one another, the heart fibre consists of
short oblong cells united end to end
(branched fibre may easily be obtained from
liver of frog)

Distribution of nerves to muscles,
many punctate sarcoplasm and
bundles to form end plates

Real work never from play or out of
Special power is contractility,
distinct from elasticity, is vital property,
requires stimulus, it always takes
place in direction of fibres, formerly
was thought to depend on nerves, but
stimuli are able to produce it even
when nerves are separated

upst out apt. - left hand in position

now begin 15 min a side late
the same hour, direction

in position & height of him
to come on the other of come
the same of for, that with

all down come

beginning gradually of arm up
in one side of shoulder & back
and up to arm, but not to the

to arm as right

arm to arm every, satisfaction

arm to arm every, satisfaction
in, and in death
at the same time
- back to arm as right

(upst of arm)

at the same time of compensation & then in

but these moves to be out - say:

of position in arm as a rule -

of position in arm as a rule -

in position of arm as a rule -

of position in arm as a rule -

of position in arm as a rule -

of position in arm as a rule -

Common during irritability of motor nerves
but not contractibility of ~~muscles~~ ^{muscles}
Stimuli are numerous, mechanical or
in fact muscular by vital stimuli
the stimulus may act directly ^{indirectly} on or through
nerves ~~muscles~~

A constant supply of blood is common
when more cells is by a time
process of contact = work or
inward and outward collection area is
established,

Phenomena. begin ^{for a spot} at either end
which spreads over fibres
the current is accompanied by
approximation of transverse striations
become 4 or 5 lines as ~~small~~ ^{short} as
in relaxed condition at same time
it increases in width, the heaved feel
depends on increased tension
a certain period elapses between stimulus
and contraction - the velocity of wave
of contact 40 m per second

When in returning muscles from
 and turn of use in muscles,
 from ear to ear 16 hours
 many muscles during intervals of
 music. Co. 2, N. 50.
 circulation of venous blood
 in some only, from air
 for a short interval quickly
 by way of the arteries during
 some intervals.
 when the muscles of
 ingesting arterial blood is still,
 it is shown experimentally
 death, change of position of
 even in coffee,
 often more than months
 death during some days been
 still and rigid. Motion as *Agonizans*
 usually after time in such an *agon*
 little spirit and force.
 in deep muscle becoming an *agon*
 with rest and in *agonizans*,
 action also an *agon* some change

Force has been estimated by Helmholtz
Guthrie of Aug. 15 to 16000 times its own
weight in a minute, energy very
great at first, a slight amount of
heat is produced, weather is proved
from friction or chert: act. is still
doubtful, a slight sound is produced,
known by finger in ear, in contact
is immediate, contact ~~is~~ tempered
is slow and disappears slowly,
and all possess same rate, ~~the~~ strips
some much faster than others,
the quickest some times proven
as much as 10 or 12 as pre-stated motions

Andy March 2

Andy on air: the air distribution
is made by the air
at a specific ^{weight} ~~and~~ ^{weight}

of the pressure on the
air in the air

in the air pressure and
the air weight, of the air

is made by the air weight
but the air pressure

means to the air
the air pressure of the air

not the air weight at the
air pressure of the air

means to the air
the air pressure of the air

means to the air
the air pressure of the air

means to the air
the air pressure of the air

means to the air
the air pressure of the air

means to the air
the air pressure of the air

MS
O 82n
1877-8
8220